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ABSTRACT

This report presents the objectives and accomplishments of the Center from April 1, 1968, to October 31, 1968. The four program areas discussed are 1) the environment for teaching; 2) heuristic teaching; 3) teaching the disadvantaged; 4) nonprogrammatic research. Each program is composed of a number of projects. The current state of each project is explained, as are the workings of the support services. Other information includes the names and responsibilities of the officers, executive board, advisory panel, and the research and development associates staff. A section containing resumes of Center publications and products completes the report. (RT)

ED048136

STANFORD CENTER FOR RESEARCH AND DEVELOPMENT IN TEACHING

School of Education
Stanford University

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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THIRD ANNUAL REPORT

October 30, 1968

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Report No.:	Annual Report No. 3 Quarterly Report No. 12
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Name of Institution:	Stanford University
Title of Center:	Stanford Center for Research and Development in Teaching
Name of Center Director:	Robert N. Bush

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INTRODUCTION

The Second Annual Report of the Stanford Center for Research and Development in Teaching covered the activities of the Center from April 1, 1967 to March 31, 1968. It also served as documentation for the Center's budget request for the fiscal year beginning July 1, 1968. Since that time the Stanford Center's fiscal year has been changed to begin on February 1.

This Third Annual Report is therefore based on the Program Plan and Budget Request submitted to the Research and Development Centers Branch of the U. S. Office of Education on October 30, 1968, in preparation for the 1969 fiscal year. Although the introductory material has been slightly revised, pages 7-204 of this report are reproduced directly from Sections I-III of that document, and page citations to either volume are interchangeable. The present report is intended for dissemination to the wider audience which has demonstrated an interest in the work of the Stanford Center.

The material in this report is presented in the format requested by the Research and Development Centers Branch. We have provided updated Program and Project Resumes for the Center's ongoing activities; these appear on pages 7-127. As will be noted, the resumes are organized according to a standardized set of headings. Accompanying time schedules project work during the next five quarters for the individual projects and over a full five years for the three major programs. Also included are Bureau of Research Taxonomy Code Sheets, which provide basic information about each project in a form that can be coded by the Office of Education for quick information retrieval.

Progress Reviews for the period July 1-October 31, 1968 are presented on pages 132-164. Progress for the period April 1-June 30, 1968 was reported in the Center's Quarterly Report No. 11. Pages 128-131 describe administrative and organizational changes and list the Center's professional staff and the members of its Advisory Panel.

The Center's output since its inception is described on pages 165-204. Included in this section are Publication Resumes for a number of Center publications. ERIC Resumes have previously been submitted to the Research and Development Centers Branch to cover publications not included in this section. We hope that those interested in the Center will find, in this collection of documents, a systematic, comprehensive, and up-to-date statement of the Center's current activities and future plans.

The past seven months have seen good progress toward the Center's redefined goals. With our new organization and an increasingly focused program, the staff as a whole--senior and junior professionals and technical personnel--are increasingly working together as a team rather than as individual investigators or in small isolated enclaves. As each of our substantive programs mature and become organized, new kinds of leadership and productivity are emerging. As we move to implement our reformulation of the problem area of the Center and to develop further each of the three programs, their relevance to the pressing educational needs of the times becomes clearer, and their reinforcement of and relationship to one another becomes increasingly apparent. We are convinced that over the next five years we shall be able to make a contribution to the redefinition of the teacher's role that is made imperative by the impact of modern technology and the pace of social, economic, and political change.

The idea behind the R&D Center program, that of assembling a critical mass of behavioral scientists and practicing educators and holding them together long enough to make a sustained effort toward the solution of a significant educational problem, seems to us to be taking even firmer root in the university community. We have been further encouraged by the Office of Education's invitation to apply for educational research facility construction funds, which opens the prospect of carrying on our program in a physical setting that will make possible both a more rapid and a more complete realization of our mission.

I. NEW AND CURRENT PROGRAM PLANS

A. PROGRAM AND PROJECT REGISTER

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Code No.	Title	Investigator(s)
03.	THE ENVIRONMENT FOR TEACHING	R. L. Warren
0302	The Organizational Context of Teaching	G. W. Sowards B. Lopossa
0303	Professional Socialization of the Teacher	R. L. Warren
0304	Attitudes of Teachers toward Their Occupation	R. W. Heath
0305	Case Studies of the Teacher's Role in Traditional and Innovative Elementary Schools	R. L. Warren
0306	Organizational Change: The Study of Innovations in Educational Institutions	K. E. Knight J. V. Baldridge
0307	The Teacher in the Authority Structure	E. G. Cohen S. M. Dornbusch J. W. Meyer W. R. Scott
0308	The Social Context of Teacher-Student Relations	C. N. Alexander J. W. Meyer P. Wallin
0309	Characteristics of Effective Teachers and the Distribution of Teacher Services	H. M. Levin
04.	TEACHING THE DISADVANTAGED	R. W. Heath
0401	Educational Community Organization	R. W. Heath
0402	Teacher Training: Standard English as a Second Dialect	R. L. Politzer
0403	Developing Problem-Solving Skills through Students Teaching Students: Use of Small Groups	R. H. Koff
0404	Use of Small Groups in a Changing School	F. B. W. Hawkinshire
0405	Small Group Interaction (Incorporates 0106, Teaching in Small Groups, and portions of 0505, Small Group Interaction)	F. B. W. Hawkinshire

05.	HEURISTIC TEACHING	R. E. Snow
0501	Training Studies (Incorporates 0101, Technical Skills of Teaching: General; 0108, A Taxonomy of Teaching Behaviors)	R. E. Snow
0503	Microteaching and Intern Data Bank (Incorporates 0109, Measuring Attending Behavior through 35mm Time-Lapse Photography; portions of 0102, Technical Skills of Teaching: Explaining; 0502, Intern Data Bank; and portions of 0505, Small Group Interaction)	R. H. Koff
0504	Uncertainty Studies (Incorporates 0111, Relationship of Teaching Behaviors to Students' Ability to Use Information, and 0112, Teacher Behavior in Relation to Student Anxiety)	J. E. Sieber
0506	Personal Competencies	C. E. Thoresen
06.	NONPROGRAMMATIC RESEARCH	
0602	Non-Intellective Effects of Educational Technology: The Computer as an Authority Figure for Pupils	R. D. Hess
07.	SUPPORT SERVICES	
0704	Methodology Unit	J. D. Elashoff
	PROJECTS BEING COMPLETED (No funds for FY 1969 requested)	
0102	Technical Skills of Teaching: Explaining	N. L. Gage
0103	Technical Skills of Teaching: Foreign Language	R. L. Politzer
0105	Technical Skills of Teaching: Role-Playing	F. R. Shaftel
0201	Teacher Attitudes and Their Correlates	N. L. Gage
0202	Teachers' and Pupils' Cognitive Preferences in Mathematics	R. W. Heath
0301	The Teacher in 1980	R. N. Bush
0601	Pupillometry (Formerly 0203, Pupillometry in the Study of Teacher Attitudes)	R. H. Koff
	PROJECTS COMPLETED OR DISCONTINUED	
0104	Technical Skills of Teaching: Social Studies	R. E. Gross
0107	Teaching for Divergent Thinking	P. S. Sears
0110	Overview of Research on Teaching Methods	N. L. Gage
0204	Development of an Instrument for Students' Descriptions of Teachers	L. J. Cronbach

B. STATEMENT OF FOCUS

The focus of the Center has not changed since the submission of the Second Annual Report, at which time a major shift in focus was initiated. Since then, we have further sharpened that focus. Good progress has been made in expanding the theoretical structure which ties the projects together within and among the three major programs and relates the three programs to the Center's major undertaking, which is to contribute to the improvement of teaching in the schools of this country.

The reasons for the change of focus, how the new focus builds upon the prior work of the Center, its theoretical basis, and a description of the objectives and the methods to be employed were all specified in the Second Annual Report, April 1968 (see especially pages 2-7 and the individual program descriptions on pages 146-159, 193-195, and 214-217).

Since the resume originally published in Research in Education and reproduced in the latest issue of the Bureau of Research publication Current Project Information is not based on the new focus and program of the Center, we present a new and updated resume.

CENTER RESUME

The Stanford Center for Research and Development in Teaching, established in 1965, was approved for a five-year extension in July 1968 and is projecting its work through 1973. As a result of its work during the first three years, the Center moved in 1968 to a revised statement of its problem area. It has now defined more clearly the urgent need for a fundamental reformulation of the future role of the teacher. Its mission is to specify as clearly, and on as empirical a basis as possible, the direction of that reformulation, to help shape it, to fashion and validate programs for training and retraining teachers in accordance with it, and to develop and test materials and procedures for use in these new training programs.

The Center is at work in three interrelated problem areas: (a) Heuristic Teaching, which aims at promoting self-motivated and sustained inquiry in students, emphasizes affective as well as cognitive processes, and places a high premium upon the uniqueness of each pupil, teacher, and learning situation; (b) The Environment for Teaching, which aims at the problem of making schools more flexible so that pupils, teachers, and learning materials can be brought together in ways that take account of their many differences; and (c) Teaching the Disadvantaged, which aims to determine whether more heuristically oriented teachers and more open kinds of schools can and should be developed to improve the education of those currently labeled as the poor and the disadvantaged.

Representative projects to implement these programs include:

1. Training Studies on Teacher Skills and Teacher-Learner Interactions.
2. Teaching for Uncertainty Behavior in Pupils.
3. Microteaching Procedures and Research.
4. Development of Personal Competencies of Teachers.
5. Developing the Capacity to Teach in Small Groups.
6. Black Community Organization for Educational Change.
7. Training Teachers to Teach Standard English as a Second Dialect.
8. Methods of Crisis Resolution in Troubled Schools.
9. Developing Problem-Solving Skills through Using Older Pupils to Teach Younger Pupils.
10. The Professional Socialization of Teachers.
11. Case Studies of Teachers' Roles in Traditional and Innovative Schools.
12. Processes of Organizational Change and Innovation in the School.
13. The Teacher in the Authority Structure.

C. CURRENT PROGRAMS AND PROJECTS

Program 03: The Environment for Teaching

Coordinator: Richard L. Warren

Project Leaders: C. N. Alexander, J. V. Baldridge, Elizabeth G. Cohen, S. M. Dornbusch, K. E. Knight, H. M. Levin, J. W. Meyer, W. R. Scott, P. Wallin, R. L. Warren

Importance, need, or justification

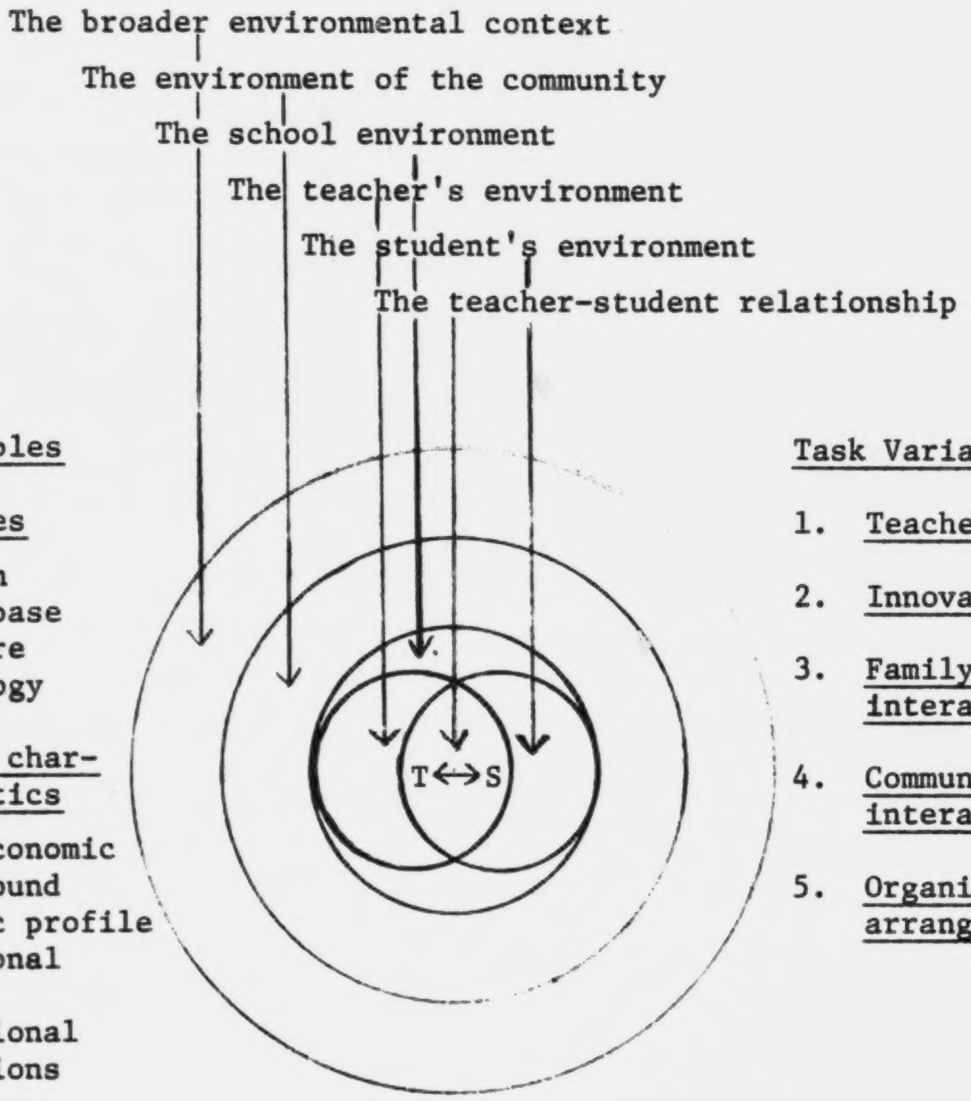
As suggested in the Second Annual Report, technological advances and social crisis create a strong need for research on the environment for teaching. Environmental conditions and processes are changing rapidly. Teachers, administrators, school boards, and community groups are all involved in shaping and modifying this environment. In today's world such involvement is often in the form of a hurried response to a crisis rather than a studied consideration of alternatives which the environment may offer. This problem results in part from the fact that extant research neither adequately describes the environment in which teaching now takes place nor identifies viable alternative modifications of that environment. Consequently this program sees as an impelling need a significant advance in knowledge about the operative effects of various environmental conditions and processes on teachers and students.

Purpose, objectives, or goals

The Environment for Teaching program therefore seeks to arrive at knowledge and identify actions which will contribute to the development of a school environment functionally supportive of effective teaching and learning.

Method, strategy, or design

While the research domain of this program is the total socio-cultural milieu in which teaching takes place, the ultimate concern is the immediate environment of teacher-student relationships and the degree to which this environment enhances the personal commitment and productivity of both teachers and students. An effective relationship at this level is a function, however, of conditions and processes which are located and must be studied in more complex environmental settings. These "environments" and the variables which constitute the focus of the projects in this program can be rendered in the following way:


The broader environmental context
The environment of the community
The school environment
The teacher's environment
The student's environment
The teacher-student relationship
T⟷S

Input Variables

1. **Resources**
   - Location
   - Fiscal base
   - Structure
   - Technology
2. **Student characteristics**
   - Socio-economic background
   - Academic profile
   - Educational goals
   - Occupational cognitions
3. **Teacher characteristics**
   - Training
   - Experience
   - Aspirations and attitudes
   - Socio-economic background
4. **Community characteristics**

Task Variables

1. **Teacher evaluation**
2. **Innovations**
3. **Family-school interaction**
4. **Community-school interaction**
5. **Organizational arrangements**

An examination of the projects in this program will indicate that the research is directed at developing empirical data on (a) specific environmental characteristics and processes (input and task variables), and (b) interrelationships among such characteristics and processes. For example: The occupational aspirations of students are being studied as a function of the socio-economic context of the school; patterns of teacher-pupil interaction are being studied as a function of the teacher's mobility aspirations; the teacher's perceptions of and attitudes toward the authority structure of the school are being studied as a function of the evaluation system; the stability of organizational change processes is being studied as a function of one or more school and community characteristics. It should also be noted that these variables tend by definition to stipulate the environmental context in which they need to be studied. The teacher's environment may be appropriate in one instance, the school environment in another.

Characteristics of users or the sample

The range of schools and teacher-student populations to which research in this program is directed includes elementary, secondary, and university.

Expected end products or results

Since the concept of the "environment for teaching" as a research domain is comprehensive, there is considerable latitude in the particular research emphases which can develop. Within the program, several are emerging and will receive increased attention in the next few years: change and the decision-making process in schools, the organizational context of teaching as an occupation, the school and family context of student educational and occupational aspirations and goals. Projects now in the proposal stage may eventually lead to additional research emphases.

In the Center's Second Annual Report, the Environment for Teaching program was described in the context of an ideal school (the "open" school) whose organizational characteristics would be functionally supportive of effective teaching. Given the complexity of any environmental context and the possible combinations of environmental and population characteristics, it may be that research findings in this program will point to more than one type of "ideal" school. Consequently, the products which we intend to develop are statements about strategies of policy and action which can be selectively utilized by school and lay personnel to develop an appropriate, meaningful environment for teaching.

Relationship to other Center projects

Because the Environment for Teaching program is concerned with the context of teaching, it is immediately relevant to the other two Center programs. Several of the projects in the program on Teaching the Disadvantaged deal very directly with aspects of the environment for teaching, and, of course, it is important to consider the kind of environment in which heuristic teaching can and should take place.

Program 03: Environment for Teaching

PROGRAM TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

FY 69	FY 70	FY 71	FY 72	FY 73	FY 74	Activities
---						Completion of organizational change study at the high school level.
---						Analysis of data on the professional socialization of teachers.
---	---					Development and completion of organizational change study at the university level.
---	---					Development and completion of studies of the characteristics of effective teachers and the distribution of teacher services.
---	---	---				Development and completion of studies of teachers in the authority structure of schools.
---	---	---				Development and completion of studies of the social context of teacher-student relations.
---	---	---	-			Development and completion of case studies of the teacher's role in traditional and innovative elementary schools.
		--	---	-		Preparation and dissemination of a comprehensive analysis of alternative policies and actions concerning the environment for teaching.
			--	---		Pilot study of extensive Center involvement in the life of a school or school system.

Project 0302: The Organizational Context of Teaching

Principal staff: G. Wesley Sowards, Barbara Lopossa

Importance, need, or justification

Phase 2 of this study was undertaken because the widespread growth of team teaching appears to be based mainly upon its face validity and upon some generalizations from small-group research (performed with ad hoc groups) which may or may not be applicable to teaching teams. Data from this project will be helpful to school administrators wishing to understand and evaluate team teaching in terms of its effect on teacher decision-making behavior. This study will also provide useful data for those school administrators concerned with the question of team size and team leadership.

Purpose, objectives, or goals

This project has been divided into two phases. The first phase, described in the Second Annual Report, was aimed at identifying organizational elements which influence the decision-making behavior of classroom teachers. Analysis of the data from this phase has been completed and a report is being prepared.

The second phase deals with the decision-making efficiency of elementary school teaching teams as compared to that of ad hoc groups of classroom teachers as well as individual teachers. The study is also designed to yield data on interaction within groups engaged in the decision process. Thus, the effect of such factors as the presence or absence of an appointed leader, experience in working as a group, and size of group will be assessed in relation to the pattern of social interaction and the decision-making behavior of the groups. Phase 2 builds on the earlier work in Phase 1 by using actual teaching problems and by making use of observers as well as tape recordings during group decision-making sessions.

Method, strategy, or design

Subjects in the study were 27 existing teams (95 individuals) and 95 self-contained classroom teachers. Twenty teams were randomly assigned to the group-decision condition and worked as intact teams; members of the remaining seven teams were reassigned to an individual-decision condition so that these teachers worked as 20 individuals. Twenty of the 95 self-contained classroom teachers were randomly picked to work as individuals while the remaining 75 were formed into 20 ad hoc groups of the same sizes as the teaching teams. Analysis of variance will be used to compare the decisions and the decision-making behavior of these four experimental groups.

Data for this study were gathered by means of the Decision Process Test developed for use with teachers and based on a similar instrument developed by Brim, et al. In addition, questionnaire data were collected about the subjects, and the interaction of subjects in the group-decision condition was observed.

Users and the sample

The sample is covered above. Users of the project results will be teachers and teacher trainees.

Expected end products or results

Technical report describing the study and pointing out implications.

Usefulness of findings, end products, or results

Useful to those evaluating or considering team teaching.

Relationship to other Center projects

Relationship to prior phase of project explained above.

Note: No project funds are requested for FY 1969. Since the project is scheduled to be completed before February 1969, no Time Schedule is presented here.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title The Organizational Context of Teaching

Investigator G. W. Sowards, Barbara Lopossa

1 5 2 0 3 2 4 5 5 2 6 ___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 3	B.	Program No.	The Environment for Teaching
9 0 10 2	C.	Project No.	
11 ___ 12 ___	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 1	G.	Class of Activity	Research
18 0 19 7	H.	Approach	Laboratory study (experimental)
20 2 21 0	I.	Educ. level Ultim. Target group	Elementary and secondary
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 0 27 1	L.	Spec. Char. Ultim. Target group	General population
28 0 29 1	M.	Char. Instrumental Target group	Professional education personnel
30 3 31 0	N.	Topical Area Code	Instructional systems and practices
32 1 33 0 34 1	O.	Subject matter Field	Basic -- more than one field
35 1 36 0	P.	Acad. Area of Investigator	Education
37 ___ 38 ___ 39 ___ 40 ___	Q.	FY Allocation (thousands)	

Project 0303: Professional Socialization of the Teacher

Principal staff: Richard L. Warren

Importance, need, or justification

See Second Annual Report, pp. 196-198.

Purpose, objectives, or goals

See Second Annual Report, pp. 196-198.

Method, strategy, or design

In 1967-68 the focus of this project was primarily on beginning teachers and the socialization effects of the first year of teaching on their sense of autonomy and their attitudes about what constitutes good teaching. Although the first year was conceived as a pilot study, extensive data, probing a wide range of potentially important socialization variables, were collected for one school district. Three questionnaires were administered to the teachers and administrative personnel (approximately 1300) in a school district serving a metropolitan community of some 90,000 population. The questionnaires dealt with (a) biographical data; (b) attitudes with respect to teacher autonomy and professional responsibilities; and (c) characteristics of the successful teacher. The latter two questionnaires were administered to teachers at the beginning and again at the end of the school year. The population was divided into four major groups for purposes of data analysis: beginning teachers, experienced teachers new to the district, district experienced teachers, and administrators. Among teachers the data were further stratified according to sex, and grade level.

Expected end products or results

It is planned that the project will produce analyses and reports useful to school districts in structuring meaningful "induction" experiences for new teachers and in evolving more productive relationships between administrators and teachers. During the next fiscal year, however, the activities in the project will be limited to data analysis and preparing reports and memoranda. Because one of the principal investigators (G. W. Sowards) has recently left the Center, the responsibility for the project rests on the second investigator (R. L. Warren).

Other ongoing commitments in the Center make it necessary for the latter to delay long-range projections on this project until the question of allocation of time is resolved.

Relationship to other Center projects

The project is integral to mapping an "environment for teaching." It is closely related to several other projects in the Environment for Teaching program, e.g., The Teacher in the Authority Structure and Case Studies of the Teacher's Role in Traditional and Innovative Elementary Schools. In a broader context, the project is directed at identifying factors which affect the teacher's clarity of role understanding and commitment to the profession.

Project 0303: Professional Socialization of the Teacher

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
--------	--				Data analysis
	--	--------	--		Writing final reports

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Professional Socialization of the Teacher

Investigator R. L. Warren

1 5 2 0 3 2 4 5 5 2 6 ___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 3	B.	Program No.	The Environment for Teaching
9 0 10 3	C.	Project No.	
11 ___ 12 ___	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 1	G.	Class of Activity	Research
18 0 19 4	H.	Approach	Survey
20 2 21 0	I.	Educ. level Ultim. Target group	Elementary and secondary
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 0 27 1	L.	Spec. Char. Ultim. Target group	General population
28 0 29 1	M.	Char. Instrumental Target group	Professional education personnel
30 2 31 4	N.	Topical Area Code	Educational personnel as an objective study
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 1 36 0	P.	Acad. Area of Investigator	Education
37 ___ 38 ___ 39 ___ 40 ___	Q.	FY Allocation (thousands)	

Project 0304: Attitudes of Teachers toward Their Occupation

Principal staff: Robert W. Heath

Importance, need, or justification

The project is based on the assumption that the attitudes of teachers toward their occupation will relate to their success and tenure as teachers. If it were possible to identify attitude profiles as functional or disfunctional, it would then be possible to design elements of teacher training programs that contribute to constructive attitudinal sets of teaching personnel.

Purpose, objectives, or goals

The purpose of the project was to develop six attitude scales investigating teacher's attitudes toward their occupation. The scales are Job Security, Financial Status, Social Value, Job Satisfaction, Creativity, and Conformity.

Method, strategy, or design

Ten items were written for each scale and were then submitted to a series of judges to assess their relevance to the six scales. After considerable revision and editing the items were administered to approximately 50 teachers-in-training. The item analysis has been completed and a larger sample of in-service teachers is being sought for standardization.

Users

The fully developed instrument would be used with candidates for teacher training and samples of in-service teachers.

Results and usefulness

The results of the research would be used to alter teacher training programs. For example, it should be possible to make the content of teacher training courses contribute to the development of teacher characteristics that enhance teacher success and tenure.

Relationship to other Center projects

This project is part of the Center's program on the Environment for Teaching and is closely related to Project 0303 on Professional Socialization of the Teacher in that program.

Project 0304: Attitudes of Teachers toward Their Occupation

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
------	------	------	------	------	Completion of standardization, administration, and preparation of a research and development memorandum.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Attitudes of Teachers toward Their Occupation

Investigator R. W. Heath

1 5 2 0 3 2 4 5 5 2 6 ___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 3	B.	Program No.	The Environment for Teaching
9 0 10 4	C.	Project No.	
11 ___ 12 ___	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 1	G.	Class of Activity	Research
18 0 19 4	H.	Approach	Survey
20 0 21 1	I.	Educ. level Ultim. Target group	All levels and ages
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 0 27 1	L.	Spec. Char. Ultim. Target group	General population
28 1 29 0	M.	Char. Instrumental Target group	Instructional staff
30 2 31 4	N.	Topical Area Code	Educational personnel as an objective study
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 0 36 1	P.	Acad. Area of Investigator	Psychology
37 ___ 38 ___ 39 ___ 40 ___	Q.	FY Allocation (thousands)	

Project 0305: Case Studies of the Teacher's Role in Traditional and Innovative Elementary Schools

Principal staff: Richard L. Warren

Importance, need, or justification

Innovations in structural arrangements, teaching responsibilities, scheduling provisions, and pupils' class assignments are widely considered to make school experiences more meaningful for teachers and pupils. However, extant research provides little evidence to suggest the results of such changes. There is thus a strong need for studies of the effect of such changes on the school and on teacher behavior.

Purpose, objectives, or goals

The long-range objective of this project is a comparative analysis of the role of the elementary teacher in innovative or "open" schools--those characterized by high organizational and structural flexibility--with the role of the teacher in schools organized and operated along more traditional lines. A basic aim of the project is to examine the hypothesis that the "open" school is functionally instrumental in providing more productive, meaningful patterns of interactions among teachers, pupils, and the principal.

Method, strategy, or design

The methodology of the project is primarily participant observation supplemented by interviews, questionnaires, and other relevant data-gathering techniques. The project has been initiated with a case study of a traditional school for the following reasons: (a) to provide baseline data against which to analyze an "open" school; (b) to develop a holistic picture of the teaching experience in an elementary school, based on the conviction that this type of research is not adequately represented in extant research on teaching; and (c) to develop hypotheses about particular aspects of the teaching experience as a basis for the design and implementation of subsequent studies. Several studies are now being developed. It is planned that they will be carried out prior to the case study of an innovative school because they are requisite to a more comprehensive delineation of the teaching experience. The first such study will focus on patterns of interaction, attitudes, and relationships between elementary school teachers and specialists who work in the school on a part-time basis, e.g., speech therapists, psychologists, etc. A second study will be directed at studying patterns of teacher-parent contacts and interaction.

Expected end products and their usefulness

The anticipated products of this project will be several comprehensive case studies of elementary schools and a series of research and development memoranda focusing on specific aspects of the teaching experience. The latter will attempt to clarify the present role of the teacher, and to suggest appropriate changes in this role vis-a-vis colleagues, parents, and administrators.

Relationship to other Center projects

This project is particularly relevant to studies of the teacher in the authority structure of the school and to studies of the social context of teacher-student relations.

Project 0305: Case Studies of the Teacher's Role in Traditional and Innovative Elementary Schools

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
------	------				Complete and write final report on case study of the traditional school.
------					Develop a model of "teacher encounters" for the study of the teaching experience.
---	------				Develop and pilot test projective instruments for use with the teacher encounters model.
		------			Carry on full-scale field study of teacher encounters.
			------		Write final report on the teacher encounters study.
				------	Begin design and implementation of a study of relationships between elementary teacher and specialists.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Case Studies of the Teacher's Role in Traditional and Innovative Elementary Schools

Investigator R. L. Warren

1 5 2 0 3 2 4 5 5 2 6	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 3	B.	Program No.	The Environment for Teaching
9 0 10 5	C.	Project No.	
11 12	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 1	G.	Class of Activity	Research
18 0 19 5	H.	Approach	Case study
20 2 21 1	I.	Educ. level Ultim. Target group	Elementary
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 0 27 1	L.	Spec. Char. Ultim. Target group	General population
28 0 29 1	M.	Char. Instrumental Target group	Professional education personnel
30 2 31 4	N.	Topical Area Code	Education personnel as an objective study
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 1 36 0	P.	Acad. Area of Investigator	Education
37 38 39 40	Q.	FY Allocation (thousands)	

Project 0306: Organizational Change: The Study of Innovations in Educational Institutions

Principal staff: K. E. Knight, J. V. Baldridge

This project is being expanded in the coming fiscal year to include not only the present study of innovations in secondary schools, under the direction of Kenneth Knight, but also a study of innovations in universities. The latter will be directed by J. Victor Baldridge, a new member of the Center staff. Resumes for the separate studies follow.

Study A: Innovations in Secondary Schools (Knight)

Importance, need, or justification

Curriculum developments, new organizational arrangements, and technological advances constitute a rich source of innovative ideas and plans. If schools and school systems are to make use of such innovative possibilities, it is vital to study and understand the decision-making process in the school setting.

Purpose, objectives, or goals

The decision processes by which a school changes or fails to change in support of effective teaching are the focus of this study. The research seeks to construct a comprehensive description of the decision-making process that leads to (or blocks) major changes in secondary schools. The decision-making process will be specified by (a) success or failure in adoption; (b) type of change, i.e., course content or organizational structure; and (c) five phases of the decision-making process.

Method, strategy, or design

The research design views the change process as multidimensional. The study will attempt to identify the dimensions most critical to the success or failure of major change, and to investigate these dimensions in the same sample of schools, thus allowing their relations to be documented. Usually such relations can only be suggested by matching, as closely as possible, research studies carried out on different samples with different instruments. The present design should permit quantitative relations among the dimensions to be established.

The design strives for generality far beyond that provided by case studies. It relies on the selection of about 20 San Francisco Bay Area high schools which represent a balance of demographic characteristics of the school population, such as size, ethnic composition, socioeconomic level. Results will be reported for the set of sample characteristics rather than for a single institution. It should also be possible to report on systematic variation in the change process according to certain characteristics.

Sample

The sample will be drawn from secondary schools in the Bay Area.

Expected end products or results

The study expects to produce a monograph detailing the decision-making process in schools, as well as several research memoranda and doctoral dissertations.

Usefulness of findings, end products, or results

These documents will describe the organizational characteristics of schools which seem to promote flexibility for change. They will be useful to schools and school districts as suggested guidelines for bringing about change. They will also provide data useful to government agencies and private foundations in directing funds towards institutions which are organized to make effective use of such support.

Relationship to other Center projects

The study is related to the research of other projects in the programs on Environment for Teaching and Teaching the Disadvantaged. The projects of Scott and Levin in evaluation structures and school militancy raise issues which will be investigated in the framework of innovation. By sampling schools which serve disadvantaged students, we will consider at the organizational level factors which influence their improvement. The survey of a number of Bay Area schools will provide information on characteristics of these schools which other Center projects may investigate more intensively.

Study B: Innovation and Change in Universities (Baldridge)

Importance, need, or justification

Within the university structure forces are at work producing change and the need for change. Prevailing university governance processes are often not adequately prepared to confront such change and there is insufficient research available to point to necessary modifications in such processes.

Purpose, objectives, or goals

This research will focus on innovation and change processes in universities, dealing in particular with structural and organizational factors which promote or hinder change.

Method, strategy, or design

In previous research, the principal investigator studied the governance processes of New York University, emphasizing the political and organizational dynamics which promoted organizational change. The analysis of change was thus a critical feature of that research. This proposal is a logical extension of that research, and is intended to be cumulative, building on the theoretical concepts that developed out of the earlier research. In particular, this comparative research project will focus on the following issues:

1. The social structure (internal and external) of the university and the generation of change from various elements in that social structure.
2. The role of interest groups in promoting or hindering change.
3. The organization and manipulation of human, physical, and economic resources to promote innovation.
4. The forms of resistance to innovation and change.
5. The demographic characteristics of persons who take various political positions with respect to change.
6. The impact of structural changes and innovations on the teaching environment.

Sample

A number of universities and colleges with particularly interesting innovations will be examined.

Expected end products or results

The product will be a monograph detailing the results of the investigation.

Usefulness of findings, end products, or results

The potentialities of this research as a "development" strategy are quite strong. The developmental payoff would come in two forms: (a) direct implications for changing university teaching by reshaping university governance; and (b) indirect implications for changing elementary and secondary teaching through innovations in teacher-training at the university level. In other words, changing elementary and secondary teaching will require a significant change in the universities which prepare the teachers, and this research will directly contribute to an understanding of innovation and change processes in higher education.

Relationship to other Center projects

This study of innovation and change becomes logically a part of the Organization Change project and with its focus on higher education provides a complementary and cumulative relationship to Study A in this project. Because the study deals with the governance processes which frame and support teaching (at the university level), it is appropriate to the Environment for Teaching program.

Project 0306: Organizational Change: The Study of Innovations in Educational Institutions

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
------					Study A: Pilot test interview schedule and questionnaires.
------					Study B: Review of literature.
--	-----				Study A: Revision of instruments and preliminary field testing.
--	-----				Study B: Preparation of interview schedules and selection of field sites.
	--	------	--		Study A: Contact sample and conduct full-scale data collection.
	--	-----			Study B: On-site visits, interviews, development of additional instruments.
			-----		Study A: Analysis and report writing.
		--	-----	-----	Study B: Final data collection, analysis, and report writing.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Organizational Change: The Study of Innovation in Educational Institutions

Investigator K. E. Knight, J. V. Baldridge

1_5_2_0_3_2_4_5_5_2_6___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7_0_8_3_	B.	Program No.	~~The Environment for Teaching~~
9_0_10_6_	C.	Project No.	
11___12___	D.	Percent of Total Budget	
13_0_14_2_	E.	Institution	
15_0_	F.	Legislative Authority	
16_0_17_1_	G.	Class of Activity	Research
18_3_19_0_	H.	Approach	Combination approach
20_2_21_0_	I.	Educ. level Ultim. Target group	Elementary and secondary
22_0_23_1_	J.	Ethnic charact. Ult. Tgt. group	General population
24_0_25_0_	K.	Demographic Area Ult. Tgt. group	All areas
26_0_27_1_	L.	Spec. Char. Ultim. Target group	General population
28_0_29_1_	M.	Char. Instrumental Target group	Professional education personnel
30_2_31_0_	N.	Topical Area Code	The school as an institution
32_0_33_0_34_0_	O.	Subject matter Field	Not applicable
35___36___	P.	Acad. Area of Investigator	Social psychology and sociology
37___38___39___40___	Q.	FY Allocation (thousands)	

Project 0307: The Teacher in the Authority Structure

Principal staff: S. M. Dornbusch, W. R. Scott, Elizabeth G. Cohen,
J. W. Meyer

Purpose, objectives, or goals

Research in this project is directed primarily at studying, in the organizational context of schools, questions of authority relations and professionalization.

Importance, need, or justification

The professional and bureaucratic modes of organizing work are based on different and partially conflicting principles concerning how work is to be divided, where decision-making power rests, how work is to be coordinated, and how performance is to be evaluated and rewarded. These competing principles generate tensions, conflicts, and misunderstanding among participants. Such problems, coupled with the fact that increasing numbers of professionally trained persons are employed in bureaucratized organizations, add practical importance to the theoretical significance of this subject area. Teachers, as they become more professional, increasingly confront these problems.

Method, strategy, or design

A series of field studies using questionnaires and interviews will be carried out.

Characteristics of users or the sample

The sample will involve teachers and faculties at the elementary, secondary, and university levels. Users include teachers; teacher trainers; and researchers in education, sociology, and other behavioral sciences.

Expected end products or results

The products will be a series of monographs.

Usefulness of findings, end products, or results

It is intended that the various studies outlined below will lead to a rounded image of the teacher in his authority system, enabling us to learn how better teaching can be produced by a rational authority system.

Relationship to other Center projects

It is anticipated that the findings of these studies will be relevant to questions of teacher performance and evaluation in schools which concern the program on Teaching the Disadvantaged. The studies are also directly related to other projects within the Environment for Teaching program, especially that on Characteristics of Effective Teachers and Distribution of Teacher Services.

The individual studies making up the project are described below.

Study A: Status Orientation of Teachers and Their Professional Behavior (Cohen and Meyer)

Preliminary theoretical work this summer has led the two investigators away from the traditional professional-bureaucratic dichotomy or the individual approach to the teacher's attitude toward the pupil. Instead, they have focused on the sources of gratification for the teacher within an organizational context. They have identified five possible client orientations: (a) regressed, (b) adult-world oriented, (c) school-oriented, (d) personality-oriented, and (e) learning-oriented. They will relate their classification of dominant client orientations to the career aspirations and sex of the teacher, the resources in the total environment which the teacher uses for gratification, the authority and evaluation structure of the school, and the nature and extent of colleague interaction.

Study A will soon move into the pretest phase, developing scales and instruments for a later field test on elementary schools with differentiated and non-differentiated staffs, controlling for important teacher characteristics.

Study B: A Theory of Evaluation and Authority (Scott and Dornbusch)

This study is nearing completion. Based on studies of five American and two African organizations, this theory will provide immediate researchable hypotheses for testing in educational settings.

Study C: Authority and Evaluation among Stanford Faculty (Dornbusch and Scott)

This study applies the theory of Study B to its first empirical test in an educational organization. Preliminary results are extremely gratifying. A small monograph will be written during the coming year.

Study D: The Evaluation of Active and Inert Tasks among Elementary School Teachers (Dornbusch and Scott)

This study applies an important component of Study B in order to understand how teachers are evaluated. This year will see the completion of a field study among elementary school teachers in nearby counties.

Study E: The Evaluation Process Related to Bureaucratic and Professional Orientations of Elementary and Secondary School Teachers and Principals (Scott and Dornbusch)

This study will continue theoretical discussions initiated during the past summer. As in Study A, we are moving away from the professional-bureaucratic dichotomy. A survey of the past literature and instruments is being completed. We hope to initiate preliminary empirical studies during the coming year.

Study F: The Relation of the Formal Structure of Authority to the Quality of Teaching

This projected study is at present only an aspiration. We hope to examine the way in which the formal evaluation system supports or fails to support the efforts of teachers to do a better job in their teaching. We will be reviewing the literature on the measurement of teaching affectiveness in order to see if we can identify a panel of above-average teachers. Then, we will attempt to develop measures of their relationship to the authority structure compared to the relationship of average teachers to the authority structure.

Project 0307: The Teacher in the Authority Structure

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
----					Study A: Develop instruments
----	----	----			Study A: Pretest
		----	----	--	Study A: Field study
----					Study B: Final report
----	--				Study C: Final report
----					Study D: Review literature
--	----	-			Study D: Pretests
	--	----	----	----	Study D: Field study
			--	----	Study D: Final report
----					Study E: Review literature
--	----	----	--		Study E: Pilot study
			----	----	Study E: Field study
			--	----	Study F: Review literature
				----	Study F: Pilot study

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title The Teacher in the Authority Structure

Investigator E. G. Cohen, S. M. Dornbusch, J. W. Meyer, W. R. Scott

1_5_ 2_0_ 3_2_ 4_5_ 5_2_ 6___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7_0_ 8_3_	B.	Program No.	The Environment for Teaching
9_0_ 10_7_	C.	Project No.	
11___ 12___	D.	Percent of Total Budget	
13_0_ 14_2_	E.	Institution	
15_0_	F.	Legislative Authority	
16_0_ 17_1_	G.	Class of Activity	Research
18_3_ 19_0_	H.	Approach	Combination approach
20_0_ 21_1_	I.	Educ. level Ultim. Target group	All levels and ages
22_0_ 23_1_	J.	Ethnic charact. Ult. Tgt. group	General population
24_0_ 25_0_	K.	Demographic Area Ult. Tgt. group	All areas
26_0_ 27_1_	L.	Spec. Char. Ultim. Target group	General population
28_0_ 29_7_	M.	Char. Instrumental Target group	Combined educators and non-educators
30_2_ 31_3_	N.	Topical Area Code	Organization, administration, and management of schools
32_0_ 33_0_ 34_0_	O.	Subject matter Field	Not applicable
35_0_ 36_2_	P.	Acad. Area of Investigator	Sociology
37___ 38___ 39___ 40___	Q.	FY Allocation (thousands)	

Project 0308: The Social Context of Teacher-Student Relations

Principal staff: J. W. Meyer, P. Wallin, C. N. Alexander

Objectives

This project currently includes a series of specific empirical studies of the impact of organizational features of schools on the teaching and learning of educational and occupational goals. It is concerned with such school characteristics as teaching and guidance arrangements, resource levels, and the social composition of the student body.

Studies proposed for later execution are motivated by a research interest in moving from a general understanding of the consequences of school characteristics for students to a series of studies of the specific ways in which these processes operate through the mediating social position of the teacher. It is expected that this focus will increasingly characterize the aims of the project.

Method, strategy, or design

Three of the current studies compare information on the aspirations of students in a number of different schools and try to discover, using multivariate techniques, the impact of the organizational setting upon aspirations. A fourth study (Study D below) will develop data for contextual analysis, with the method of contextual analysis to be used in a proposed future study. Other proposed studies will rely on data from large-scale surveys and perhaps laboratory experiments.

Users

Teachers; teacher trainers; researchers in education, sociology, and other behavioral sciences.

Expected end products or results

These studies will lead to a series of research reports which will have direct significance for educational policy decisions.

Usefulness of findings, end products, or results

The ways in which teaching arrangements and school structures affect student decisions to remain in or drop out of school, to choose one or another kind of occupational career, or to pursue higher or lower educational goals, are obviously of great practical educational importance.

Individual studies within the project are described below.

Study A, under the direction of Paul Wallin, compares family and school influences on the educational goals of working and middle class tenth-grade boys. By comparing the educational goals of boys in eight high schools of differing social composition, the study aims to discover how much these goals are influenced by the boy's family attributes and experiences and how much they are independently affected by the features of the school which might be presumed to be indexed by social composition of the school. This is an ongoing study which has been located at the Center since July 1. The data analysis is moving toward completion. The final report, to be completed during the coming year, will include information not only on family and school influences in general, but also on the ways in which teachers' and counselors' expectations for similar students vary from school to school.

Study B, under the direction of C. Norman Alexander, is concerned with the effects of high schools on students' perceptions of the occupational structure, and hence on their educational aspirations. The study aims at discovering how students who have come from similar or identical junior high schools have different pictures of the occupational structure, and different educational aspirations, depending on characteristics of the particular high schools they are attending. The project leader is especially interested in comparing students from given junior high schools who have advanced to high schools which differ in class and ethnic composition, but is also concerned with teaching arrangements in the schools.

During the summer a comprehensive review of recent literature was carried out, and attention was focused on the problem of school sampling. All school districts in California and Oregon were contacted. Returns to date indicate that several school districts may fit the requirements of the research design. Additional information on these target school systems is now being gathered for the final selection of the sample schools. During the next year, the study will move into the field to collect questionnaire data on tenth- and twelfth-grade students in the sampled schools.

Study C, under the direction of John W. Meyer, is an ongoing investigation of the effects of college characteristics on students' occupational choices. In this study, a longitudinal design is used to examine the changes in occupational choice between the freshman and senior years of 946 students in 99 American colleges. The study aims especially at discovering the extent to which students in higher-quality colleges have their aspirations sustained by the greater educational resources found in such schools, especially the competence and repute of their teaching staffs. As an alternative, it also seems possible -- and preliminary findings lend support to the idea -- that such schools by setting very demanding and competitive standards of student performance may discourage students of any given ability from maintaining high aspirations.

This study has proceeded into the data analysis phase. During the next year, the analysis will be completed and a final report prepared.

Study D, under the direction of John W. Meyer, is an attempt to organize, for purposes of research training in the field of contextual analysis, a small library of secondary data from major studies which have been undertaken using large samples of teachers or students in many different schools. It is hoped that by making such data available to students and research trainees, a corps of people better trained to analyze this kind of information can be created. Preliminary negotiations with several different researchers and research groups have been held. These efforts will proceed during the next year, and should begin to produce results then.

Project Future Plans: Beyond the specific studies listed above, the project hopes to move toward further studies in this field. Three specific studies are contemplated: (a) An analysis of high school effects on the educational goals of students using available data from one of the large-scale surveys which have been made during the past few years, in order to discover the negative effects on such aspirations created by demanding and competitive contexts. (b) A contextual analysis, using data on teachers and guidance counselors in a number of schools, of the ways in which school differences affect the expectations these people have about the educational and occupational prospects of their students. In particular, this study would focus on the ways in which quite similar students might be viewed quite differently by teachers and counselors in different schools, and on the consequences this might have for the students involved. (c) A detailed study, perhaps under laboratory conditions, of the ways in which teachers' perceptions of students, and student perceptions of teachers, are affected by the relational context in which they find themselves. In particular, the study would focus on the ways teachers and students impute motives and personality traits to each other depending, not only on the particular behaviors they present to each other, but also on the structural situation and educational setting.

Project 0308: The Social Context of Teacher-Student Relations

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
------	------	------			Study A: Preparation of final report
			------	------	Study A: Development of plans for further analysis
------	------				Study B: Review of literature
------					Study B: Preparation of instruments
---	---				Study B: Pretesting and revision of instruments
------	--				Study B: Selecting school systems in sample
---	---				Study B: Obtaining cooperation from sample
	----	--	--		Study B: Administering questionnaires in sample schools
	--	------	------	---	Study B: Coding and processing of data
				------	Study B: Data analysis
------	------	--			Study C: Data analysis
		----	------	------	Study C: Preparation of final report
------	------	------	------	------	Study D: Negotiating conditions for obtaining available data from other researchers
	------	------	------	------	Study D: Accessing data for easier analysis by students and trainees

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title The Social Context of Teacher-Student Relations

Investigator C. N. Alexander, J. W. Meyer, P. Wallin

1_5_ 2_0_ 3_2_ 4_5_ 5_2_ 6___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7_0_ 8_3_	B.	Program No.	The Environment for Teaching
9_0_ 10_8_	C.	Project No.	
11___ 12___	D.	Percent of Total Budget	
13_0_ 14_2_	E.	Institution	
15_0_	F.	Legislative Authority	
16_0_ 17_1_	G.	Class of Activity	Research
18_3_ 19_0_	H.	Approach	Combination approach
20_0_ 21_1_	I.	Educ. level Ultim. Target group	All levels and ages
22_0_ 23_1_	J.	Ethnic charact. Ult. Tgt. group	General population
24_0_ 25_0_	K.	Demographic Area Ult. Tgt. group	All areas
26_0_ 27_1_	L.	Spec. Char. Ultim. Target group	General population
28_0_ 29_7_	M.	Char. Instrumental Target group	Combined educators and non-educators
30_4_ 31_0_	N.	Topical Area Code	Social influences on students
32_0_ 33_0_ 34_0_	O.	Subject matter Field	Not applicable
35_0_ 36_2_	P.	Acad. Area of Investigator	Sociology
37___ 38___ 39___ 40___	Q.	FY Allocation (thousands)	

Project 0309: Characteristics of Effective Teachers and the Distribution of Teacher Services

Principal staff: H. M. Levin

Importance, need, or justification

One of the important prerequisites to adopting effective policies for the schools is the identification and assessment of environmental characteristics which most influence educational outcomes. This project is directed at this research need. Given a set of teachers, pupils, curricula, materials, and facilities, research should find it possible to examine the relationships of manipulable variables to achievement, and also to predict achievement scores, toward the end of developing effective educational policies for the schools.

Purpose, objectives, or goals

The objectives of the studies in this project are (a) to determine which educational strategies are likely to be most effective in teaching basic skills to elementary school children; and (b) to outline possible alternatives for improving the quality and more nearly equalizing the distribution of teachers among urban schools.

Method, strategy, or design

This project involves at the outset a reassessment and extended study of data from the Coleman Report. Particular attention will be devoted to a simultaneous equations approach to determining scholastic achievement. The project is divided into two studies, whose methods are described in more detail below.

Sample

The samples in this project include both elementary and secondary pupils and teachers.

Expected end products or results

The product of this research will be a series of monographs reporting the empirical findings and pointing to alternative educational policies and decisions which can effect scholastic achievement.

Usefulness of findings, end products, or results

School and school board officials are concerned about problems of financing a sound, effective educational program. They are in need of significantly more research data which can help them make sound decisions on the use and distribution of available resources.

Relationship to other Center projects

The project is directly related to several other projects in the Environment for Teaching program, in particular the study of organizational change and the studies dealing with the organizational context of teaching. It also has relevance for the recruitment and effective use of teachers of the disadvantaged.

Study A, "School Characteristics and Educational Outcomes," is intended to refine the analysis of school effects on achievement and attitudes. For the past two years Dr. Levin has been recoding the Coleman data for about 4,500 sixth-graders in an eastern metropolitan region. Accordingly, he has a large sample of sixth-graders for the 1965-66 school year with information on test scores, attitudes, teacher, principal, and school characteristics. There are over 100 measures associated with each child. About four-fifths of the students are non-white.

Using single-equation, multiple-regression techniques, he has made some early estimates of the relations between student backgrounds and school characteristics on the one hand, and achievement scores on the other. The analyses have been carried out separately for blacks and whites. This work is being carried out jointly with Professor Stephen Michelson of Harvard. Dr. Levin will continue exploring these analyses with particular attention being devoted to a simultaneous equations approach to determining scholastic achievement. The immediate objective, as noted above, is to determine which educational strategies are likely to be most effective in teaching basic skills to elementary school children.

Study B, "The Distribution of Teachers' Services to Urban Schools," continues and expands research on the relationship between teachers' salaries and teacher qualities. Early findings in this study point to an unequal distribution among schools of teacher experience, verbal scores, academic majors and other teacher qualities. Generally, the teachers with higher levels of all of these characteristics were employed at schools with enrollments of higher social class students (i.e., at middle-class schools rather than lower-class ones).

These distributions will be explored in more detail, and hypotheses for obtaining better teachers for the lower-class schools will be formulated and tested. For purposes of this analysis, four samples of teachers, each representing a metropolitan area in a different geographical region of the United States, will be used. The data, collected in the Coleman survey for the school year 1965-66, have been recoded into 42 new variables using the Levin-Brookings recode program. The samples range in size from 2,999 teachers in "Eastmet" to 760 teachers in "Southmet." As mentioned above, the goal is to outline alternatives for improving the quality and more nearly equalizing the distribution of teachers among urban schools.

Project 0309: Characteristics of Effective Teachers and the Distribution of Teacher Services

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
--------	--------	--------	----		Analysis of data.
		----	--------	----	Writing reports.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Characteristics of Effective Teachers and the Distribution of Teacher Services

Investigator H. M. Levin

1 5 2 0 3 2 4 5 5 2 6	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 3	B.	Program No.	The Environment for Teaching
9 0 10 9	C.	Project No.	
11 12	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 2	G.	Class of Activity	Development-related research
18 3 19 0	H.	Approach	Combined approach
20 2 21 0	I.	Educ. level Ultim. Target group	Elementary and secondary
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 1 25 0	K.	Demographic Area Ult. Tgt. group	Urban
26 0 27 1	L.	Spec. Char. Ultim. Target group	General population
28 0 29 1	M.	Char. Instrumental Target group	Professional education personnel
30 2 31 4	N.	Topical Area Code	Educational personnel
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 0 36 4	P.	Acad. Area of Investigator	Economics
37 38 39 40	Q.	FY Allocation (thousands)	

Program 04: Teaching the Disadvantaged

Coordinator: Robert W. Heath

Project Leaders: Frank B. W. Hawkinshire, Robert H. Koff, Robert L. Politzer

Community Organization Specialist: Larnders Roy

Importance, need, or justification

In the Center's Second Annual Report we stated the justification for a program of research and development in the teaching of the disadvantaged. The first four months of our experience in the program have served to intensify our awareness of the need and importance of such a program.

Purpose, objectives, or goals

The objectives of this program are to generate useful information which will improve the training of teachers of students in minority or poverty communities; to identify teacher skills needed for crisis resolution; and to develop information about the function of teachers as change-agents of the educational institutions in which they serve.

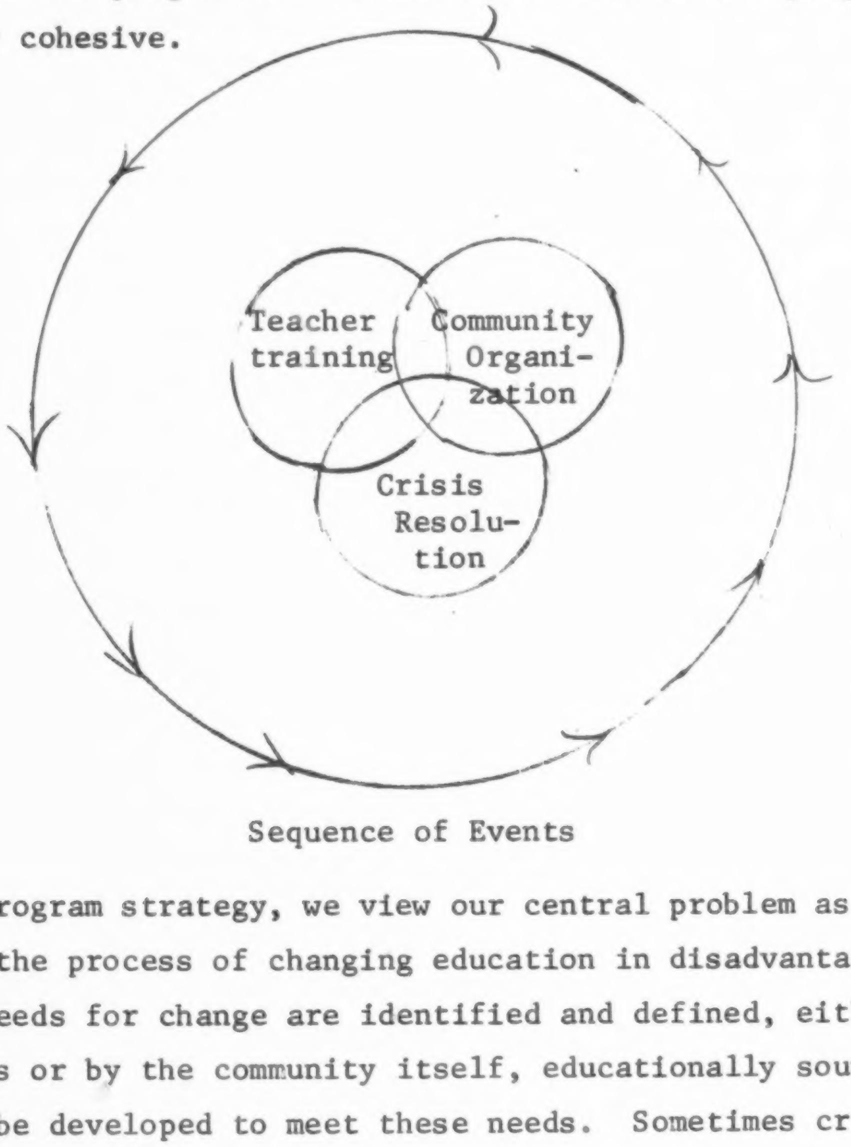
More specifically, the program seeks to define the educational needs of disadvantaged communities, identify changes in the educational system that are truly responsive to these needs, and identify and develop the strategies and tactics necessary to implement the required changes.

The program's product goals include the development of materials for teachers designed to (a) develop skills in adapting the curriculum to the special needs of disadvantaged students; (b) help teachers employ techniques that more effectively engage the student in his own education; (c) prepare teachers to deal with crisis situations and turn the energies involved in such crises to constructive and ameliorative purposes; and (d) prepare the teacher to function as a representative of both the community and the educational professions in bringing the substance and structure of institutionalized education closer to the needs and aspirations of the communities served.

Method, strategy, or design

Each project within the program has its own strategy and experimental design, as described in the individual project resumes. In presenting a five-year plan for the program, it may be well to report our current thinking on the integration of the various projects and the close and useful relation of this program to the other programs in the Center.

The following diagram represents three fields of activity that now provide a conceptual structure for the program's research and development activities. As the figure suggests, these three fields are by no means independent. The research activities, professional interests, and allocations of staff time in the three fields of activity overlap. We find that in the first four months of the program's life the activities in the program have become increasingly cohesive.



Sequence of Events

In terms of program strategy, we view our central problem as "the role of the teacher in the process of changing education in disadvantaged communities." When needs for change are identified and defined, either by professional educators or by the community itself, educationally sound practices and programs must be developed to meet these needs. Sometimes crisis situations in the classroom, in the school, or in the community bring the needed educational changes into focus. On the other hand, the very process of introducing change may create conflict and tensions that must be dealt with constructively if the change process is to yield improvement rather than damage. When communities find means of expressing their educational needs from a base of power in organizations, they also find themselves able to facilitate the introduction of constructive change and to participate in the productive resolution of crises involving the schools.

Teachers in schools serving disadvantaged communities are more likely to encounter crisis situations than are those serving middle-class dominant-culture schools. Undoubtedly this is due in part to the despair and social ferment associated with such communities. When changes are introduced in response to the needs of these communities, the alteration of conventional processes is likely to result in conflicts on at least four levels:

(1) at the interpersonal level (e.g., between individual students, between student and teacher, between teacher and administrator);
(2) at the small-group level (e.g., small groups of students in the classroom and on the school grounds, small groups of parents in conflict with teachers or administrators);
(3) at the large-group level (e.g., school boycotts, sit-ins, demonstrations, school board meeting demonstrations);
(4) at the community level (e.g., school board elections, unification elections, desegregation moves).

A realistic teacher-training program, then, must recognize the specific needs and characteristics of disadvantaged communities, identify conflict areas and methods of crisis resolution, and emphasize the importance of the community's involvement in meeting its own educational needs.

Characteristics of users or the sample

In the course of our research and development work we expect to continue to deal with pre-service and in-service teachers, community organizations, students, and parents. As our list of intended products suggests, the ultimate users of the program's work will be those responsible for the training of teachers and other educational personnel.

Expected end products or results

Our intended products will be training materials, providing both models and descriptions of techniques, for educational personnel and to some extent for parent groups and community organizations. These materials, designed to meet the criteria listed above, may take the form of training manuals, syllabi, audio tapes, videotapes, and sample curricular materials.

Usefulness of findings, end products, or results

We believe that the public school system, especially in the setting of disadvantaged communities, can expect to undergo rapid and sometimes tumultuous change during the next several years. It is the intent of this research and development program to contribute information and teacher-training materials that will be useful in making these changes educationally sound and beneficial to all that they affect.

Relationship to other Center projects

The other Center programs, those on Heuristic Teaching and the Environment for Teaching, have already embarked on research and development activities that have direct and immediate relevance to the teaching of the disadvantaged. It seems likely that the work now being done in the program on Teaching the Disadvantaged will, in turn, contribute to the goals of the Center's two other programs. Both at the formal intellectual level and in day-to-day working relationships we have shared interests, methodological concerns, and an increasingly integrated and satisfying research and development effort with our colleagues.

Program 04: Teaching the Disadvantaged (Page 1 of 2)

PROGRAM TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

FY 69	FY 70	FY 71	FY 72	FY 73	FY 74	Activities
---	---	---	---	---	---	A. Educational Community Organization Project Cluster
						1. Identification of educational needs
						a. As defined by the community
						b. As defined by professionals
---	---	---	---	---	---	2. Identification of changes responsive to needs
						a. As defined by the community
						b. As defined by professionals
---	---	---	---	---	---	3. Identification of successful tactics for change
---	---	---	---	---	---	4. Explication and codification of change tactics
---	---	---	---	---	---	5. Preparation of training materials based on 1, 2, 3, 4 above
	---	---	---	---	---	6. Testing and dissemination of training materials
						B. Crisis Resolution Project Cluster
---						1. Materials development
						a. Develop list of critical issues
						b. Develop methods of simulating the issues in a laboratory format
						c. Develop specific techniques for teaching coping mechanisms
---						2. Training design
						a. Prepare standard stimulus materials for trainees
						b. Work out training designs through practice sessions
	---	---	---			3. Training workshops
						a. Training activities with trainees
						b. Revamping training designs
						c. Training activities for trainees
						d. Upgrading skills of trainers
						e. Site consultations with trainers
						f. Upgrading skills of trainers
			---	---		4. Packaging and designing training activities
						a. Redesigning materials, training methods, and laboratory design
						b. Site consultations

Program 04: Teaching the Disadvantaged (Page 2 of 2)

PROGRAM TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

FY 69	FY 70	FY 71	FY 72	FY 73	FY 74	Activities
				---	---	5. Implementation strategies
						a. Working relationships with Regional Laboratory
						b. Working relationship with publishing outlet
						C. Teacher Training Project Cluster
						1. Standard English as a second dialect
---	---					a. Development of trial syllabus
	---	---	---			b. Testing and revision of syllabus
			---	---		c. Implementation and dissemination
						2. Uses of small groups
---	---					a. Materials development
---	---	---				b. Materials testing
		---	---			c. Development of training materials
			---	---		d. Field testing and dissemination of training materials
						3. Interaction of the teacher and the curriculum
	---	---				a. Development of a theoretical framework for teacher/curriculum interaction in teaching the disadvantaged
	---	---	---	---		b. Design and execution of experiments to test interaction modes
---	---	---	---	---	---	c. Identification of special curriculum materials
			---	---	---	d. Development of teacher training materials
				---	---	e. Test training materials

Project 0401: Educational Community Organization

Principal staff: Robert W. Heath, Research and Development Associate; Larnders Roy, Community Organization Specialist; Barbara Christiani, Community Organization Aide (part-time).

Importance, need, or justification

It seems quite clear that in many instances schools are failing large numbers of children, particularly those residing in minority and poverty communities. Techniques are being sought to empower minority groups and low-income neighborhoods to develop skills for influencing their educational institutions. These communities need the competence to assess the strengths and weaknesses of their educational institutions, to develop alternative educational policies, and to translate their interests and objectives into the means required to achieve them.

Purpose, objectives, or goals

1. Identify community-defined educational needs.
2. Identify and codify procedures used by "disadvantaged" communities to make school systems responsive to these needs.
3. Develop materials for teacher education in the field of educational community organization.

Method, strategy, or design

In this project the staff become participant-observers with a variety of community organizations working to achieve changes in the educational systems serving a minority community. By carefully documenting the strategies, tactics, and organizational processes of these groups, the project staff are developing a data base for the identification and codification of elements in the change process.

Characteristics of users or the sample

The ultimate users will be those who teach or are responsible for designing the training of teachers and other educational personnel or for implementing community educational decisions.

Expected end products or results

1. Documents, tape recordings, and videotapes expressing the needs for educational change defined by members of the community.
2. Training materials (manuals, tape recordings, videotapes, and possibly films) designed for use in the education of teachers, community leaders, and other educational personnel.

Usefulness of findings, end products, or results

We believe that the need for changes in educational systems is self-evident. Increasingly both professional educators and minority communities are identifying the types of changes that are responsive to felt needs. The usefulness of the findings and products of our research will be measured by their success in creating tactics and skills for actually bringing these changes into being.

Relationship to other Center projects

This project has close ties to both the program on Heuristic Teaching and that on the Environment for Teaching. The products of both of these programs have great potential utility in educational systems serving disadvantaged communities. Creating "open" schools and finding teaching methods that result in greater involvement of students are especially urgent in those areas where public education is failing most dramatically. We expect the close relationship among the Center's programs to improve the technical quality of our research and development activities and to heighten their immediate usefulness.

Project 0401: Educational Community Organization

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters FY 69 1st	2nd	3rd	4th	FY 70 5th	Activities
------	------	------	------	------	Identify needs a. Community defined needs b. Professionally defined needs
------	------	------	------	------	Identify changes a. Community defined changes b. Professionally defined changes
------	------	------	------	------	Identify tactics of change
------	------	------	------	------	Observe and evaluate tactics for change
------	------	------	------	------	Explicate and codify successful tactics in the change process

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Educational Community Organization

Investigator R. W. Heath

1 5 2 0 3 2 4 5 5 2 6	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 4	B.	Program No.	Teaching the Disadvantaged
9 0 10 1	C.	Project No.	
11 12	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 2	G.	Class of Activity	Development-related research
18 3 19 0	H.	Approach	Combination approach
20 2 21 0	I.	Educ. level Ultim. Target group	Elementary and secondary
22 1 23 0	J.	Ethnic charact. Ult. Tgt. group	Minority groups
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 0 27 1	L.	Spec. Char. Ultim. Target group	General population
28 0 29 7	M.	Char. Instrumental Target group	Combined educators and non-educators
30 0 31 1	N.	Topical Area Code	Combination approach
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 0 36 1	P.	Acad. Area of Investigator	Psychology
37 38 39 40	Q.	FY Allocation (thousands)	

Project 0402: Teacher Training: Standard English as a Second Dialect

Principal staff: Robert L. Politzer

Importance, need, or justification

One of the most important areas of the curriculum affecting the "culturally disadvantaged" is language. In most cases members of this group speak as their native language a substandard dialect of English (e.g., Mexican-American, a "Negro" dialect, etc.). There is reason to assume that the principal cultural disadvantage or handicap of many minority-group members is simply the fact that their native dialect is *different* from standard English. To train teachers to recognize these differences, and to apply techniques originally developed in foreign language teaching to help pupils overcome their linguistic problems with standard English, is an imperative task of education.

Purpose, objectives, or goals

The goal of the project is to produce a syllabus for the training of teachers of standard English as a second dialect. We hope that such a syllabus will not only be used in and give precise definition to special courses for teachers of the "culturally disadvantaged," but will also exert some influence on the training of teachers of English and language arts in general.

Method, strategy, or design

The project is primarily a developmental effort. On the basis of existing information, a syllabus will be designed which will combine theoretical and practical strands of teacher training. The theoretical part of the syllabus will consist of an analysis of standard English (phonology, morphology, syntax) accompanied by contrastive descriptions of comparable features in typical Mexican-American and Negro speech. The practical part will consist of sections on methodology (performance criteria for teachers) and of sample ("micro") lessons which demonstrate the application of both methodology and contrastive linguistic analyses in the classroom situation. The possibility of using videotape to illustrate these sample lessons is under consideration.

The developmental effort will be followed by research efforts concerned with specific theoretical or practical assumptions made in the syllabus. Such research may deal with assumptions concerning the language aptitude of the disadvantaged, motivation as it affects language learning, or details of teaching methodology (e.g., use of contrastive presentations of standard and nonstandard English in the classroom).

Users

The syllabus will be addressed primarily to professional educators concerned with training or retraining teachers of standard English to "culturally disadvantaged" minorities. Many of these educators lack the background and preparation needed to translate the findings of linguistics and foreign language teaching methodology into the field of second dialect teaching.

Expected end products or results

As the first end product of the project, the syllabus will provide a bridge between the fields of applied linguistics and second dialect teaching and should help teachers of the disadvantaged to approach their language-teaching tasks with up-to-date methodology and without notions and attitudes prejudicial to those tasks as well as to their pupils. The syllabus thus presents a product of immediate and obvious usefulness in teacher training. At the same time, however, care will be taken to spell out both the investigator's assumptions and possible rival methodologies. The syllabus is therefore expected to serve as a blueprint for a research phase in which the assumptions and hypotheses presented in the syllabus will be tested.

Relationship to other Center projects

This project is a direct outgrowth of Center Project 0103 on Technical Skills of Teaching: Foreign Language. The earlier project also consisted of the production of teacher-training syllabi (Technical Reports 1 and 2) and of a research phase in which some of the assumptions made in the syllabi were further investigated. (The results of these investigations are to appear soon in another technical report of the Center.) As the project of writing the new syllabus progresses, some of its methodological recommendations will take into account work done in other areas of the Teaching the Disadvantaged program, especially Projects 0403 and 0404. During the latter phase of the production of the syllabus close cooperation will also take place with projects in the Heuristic Teaching area, especially 0503.

Project 0402: Teacher Training: Standard English as a Second Dialect

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
------					Continue description of phonology and morphology of standard English and contrastive description of Negro and Mexican-American speech. Report the results of the investigation in a research and development memorandum.
	------				Write a description of the main features of standard English syntax and contrastive description of corresponding features in the speech of the disadvantaged. Investigate, on the basis of the existing literature, specific vocabulary problems and interference created by substandard dialects.
		------			Prepare research and development memorandum on syntax and vocabulary of standard English and nonstandard dialects. Begin investigation of existing teaching methodologies in teaching of second dialects.
			------		Develop models for micro-lessons applying linguistic criteria and teaching methods. Describe micro-lessons. Establish contact with microteaching projects within and outside the Center. Revise previous research and development memoranda for inclusion in the final syllabus.
				------	Compile complete syllabus and prepare all parts for publication. Initiate research phase of the project. (Probable first target: testing methodological assumptions on language aptitudes of the disadvantaged.)

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Teacher Training: Standard English as a Second Dialect

Investigator R. L. Politzer

1 5 2 0 3 2 4 5 5 2 6 ___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 4	B.	Program No.	Teaching the Disadvantaged
9 0 10 2	C.	Project No.	
11 ___ 12 ___	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 3	G.	Class of Activity	Development
18 2 19 0	H.	Approach	Development
20 0 21 1	I.	Educ. level Ultim. Target group	All levels and ages
22 1 23 0	J.	Ethnic charact. Ult. Tgt. group	Minority groups
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 2 27 1	L.	Spec. Char. Ultim. Target group	Culturally deprived
28 0 29 1	M.	Char. Instrumental Target group	Professional education personnel
30 3 31 1	N.	Topical Area Code	Curriculum
32 1 33 1 34 2	O.	Subject matter Field	English as a second language
35 2 36 2	P.	Acad. Area of Investigator	Other
37 ___ 38 ___ 39 ___ 40 ___	Q.	FY Allocation (thousands)	

Project 0403: Developing Problem-Solving Skills through Students Teaching Students: Use of Small Groups

Principal staff: R. H. Koff

Purpose, objectives, or goals

The purpose of the project is to examine the effects of a learning-by-teaching treatment on the ability of sixth-grade students to solve school-related problems. In addition, the project will attempt to bring to bear relevant knowledge from the areas of psychology, curriculum design, and group dynamics in order to develop a common critical language for describing how children learn by teaching. Finally, the project is committed to developing research methodologies for studying and evaluating the effects of a small-group-tutorial program on the ability of students to solve school-related problems.

The present research seeks to use a concept which has been largely ignored in formulating strategies for increasing meaningful learning and retention in economically deprived students. The proposed research seeks to train students, within the context of the school, to practice skills of instruction by teaching younger students. It is hoped that sixth-graders will come to view teaching as having basic purposes, functions, and values that affect meaningful learning and retention by students.

Method, strategy, or design

The first stage of the investigation involves the assessment of a series of problem-solving aptitudes: antecedent-consequent thinking, generation of hypotheses, etc. After the aptitude assessment, sixth-grade students will be divided into high and low aptitude groups. Within aptitude groups, students will be randomly assigned to experimental and control groups. Students in the experimental group will participate in a 12-week tutorial program in which they will work in small groups, with the assistance of their teachers, to plan, teach, and evaluate lessons for first-graders. Following treatment, all students will be post-tested on the aptitude measures and an assessment of their problem-solving behavior will be made by administering a specially constructed in-basket criterion task. It is expected that students in the experimental group will perform significantly better on the in-basket criterion task than will subjects in the matched control group.

Users

Teachers and teacher-trainers.

Expected end products or results

Two types of products should result from this research. First, a series of manuals and curriculum materials for tutorial activities will be written and evaluated. Second, the project expects to develop a criterion measure comprised of a wide range of school-related tasks that will allow teachers and researchers to assess problem-solving behavior of students. The following variables are to be examined by this technique: (a) problem sensing; (b) problem defining; (c) generating alternative solutions to problems; (d) foreseeing possible consequences of solutions; (e) problem complexity; and (f) solution certainty.

Relationship to other Center projects

The project has a direct relationship to each of the other projects in the Center's program on Teaching the Disadvantaged. The Educational Community Organization project serves as a resource for involving parents in the tutorial program. Principles derived from research on the use of small groups in the changing school (Project 0404) are linked directly to the potentially explosive racial problems faced daily by the integrated faculty and students of the school under study. The results of this project should also have implications for the teacher-training aspects of Project 0405.

Project 0403: Developing Problem-Solving Skills through Students Teaching Students: Use of Small Groups

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters FY 69 1st	2nd	3rd	4th	FY 70 5th	Activities
------					Establish training groups enabling sixth-grade students to observe first-graders and plan and evaluate tutorial lessons. Continue work on developing in-basket criterion task. Conduct community workshop on tutorial program for parents.
	------				Initiate training and information programs for teachers and parents of the school. Complete training and tutorial activities of sixth-graders. Complete pilot work and small scale field testing of in-basket criterion task. Begin writing of manuals and organizing curriculum materials for dissemination.
		------			Analyze data and complete final first-year report. Organize conference for interested members of the community on the theme of learning-by-teaching. Determine whether to expand project to cover a second year.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Developing Problem-Solving Skills through Students Teaching Students: Use of Small Groups

Investigator R. H. Koff

1 5 2 0 3 2 4 5 5 2 6 ___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 4	B.	Program No.	Teaching the Disadvantaged
9 0 10 3	C.	Project No.	
11 ___ 12 ___	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 1	G.	Class of Activity	Research
18 0 19 7	H.	Approach	Laboratory study (experimental)
20 2 21 1	I.	Educ. level Ultim. Target group	Elementary
22 1 23 0	J.	Ethnic charact. Ult. Tgt. group	Minority groups
24 1 25 0	K.	Demographic Area Ult. Tgt. group	Urban
26 2 27 1	L.	Spec. Char. Ultim. Target group	Culturally deprived
28 0 29 1	M.	Char. Instrumental Target group	Professional education personnel
30 3 31 0	N.	Topical Area Code	Instructional systems and practices
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 0 36 1	P.	Acad. Area of Investigator	Psychology
37 ___ 38 ___ 39 ___ 40 ___	Q.	FY Allocation (thousands)	

Project 0404: Use of Small Groups in a Changing School

Principal staff: F. B. W. Hawkinshire

Importance, need, or justification

A major problem facing schools is the integration of conflicting voices to the point at which problem-solving activity can take place. A frequently-encountered current situation is one in which schools react to minority groups presenting a list of demands to correct situations they feel to be intolerable. The techniques which seem most potent to these groups are disruptive ones. More orderly processes of negotiation and arbitration are frequently characterized by them as slow, ineffective, compromising, and not bringing about real change. It is our expectation that problem-solving meetings can bring about changes if the leaders of such meetings have the skills to identify issues, resolve conflicts, and maintain the work focus of the group. Documentation of such specific skills and their application in actual situations is clearly needed to provide guidelines to schools facing these crises.

Purpose, objectives, or goals

The immediate objectives of this project are to use small-group techniques to:

(1) identify specific problem issues which a representative number of participants see as critical to their school;

(2) help the participants develop plans for methods or procedures which they feel may help solve their perceived problem;

(3) develop ways to implement and test the feasibility of plans evolved; and

(4) develop a mechanism for incorporating the proposed ideas into the ongoing life of the school.

The goals, for the school under study, are to:

(1) bring about a more harmonious social climate within the school by bridging some of the wide gulfs which exist among the student body;

(2) increase the potency of students' and parents' participation in solving school-related problems;

(3) increase the spectrum of parents and students who are viewed as useful in helping to bring about changes within the school; and

(4) develop a list of critical incidents likely to be found in schools.

Method, strategy, or design

The study is being carried out in a high school serving an unusually varied population, ranging from clearly upper-class socio-economic status through middle- and working-class status. Nearly one-fifth of the students are members of minority groups. During the last two years, the school has undergone a series of crisis confrontations.

Four groups, consisting of students, parents, administrators, and teachers, will meet separately for six work sessions. Group methods for facilitating communication will be used to stimulate exposure of ideas. Participants will be encouraged to think about concrete solutions to problems as well as to work out methods of obtaining agreement between groups. Each group will then attempt to examine the problems and solutions offered by the other participant groups. As common views and solutions emerge, it is hoped that new task groups, representing all four groups, can be formed to develop specific steps for implementing their joint recommendations. These may include:

1. Identifying academic outcomes desired.
2. Establishing communication between parents, teachers, and students.
3. Developing skills in supporting pupil learning behavior at home.
4. Developing skills in influencing teachers and administrators in making curriculum changes.
5. Developing effective community support mechanisms to improve knowledge of educational alternatives.
6. Clarifying the role of schools in the life of the children in the community.
7. Developing interpersonal-interracial problem-solving skills to accomplish aims.

Characteristics of users or the sample

The sample has been described above. The users of the project's results can be the entire student body and parents of the school, though the results are most likely to affect the minority group members of the school. The ultimate users can be all those interested in finding solutions to school confrontation problems.

Expected end products or results

As its end products, the project intends first of all to develop a more stable climate in the school by building crisis prevention mechanisms, and to document the process by which this type of stability can be achieved. More broadly, it aims to highlight the nature and extent of problems in a changing school to which other schools need to address themselves; develop a tool kit of strategies for producing and maintaining this type of problem-solving focus within a school building; and develop a list of crisis situations which can be built into case vignettes. A longer-range goal is to develop a crisis-confrontation laboratory for training school people to cope with changing demands.

The documentation may take the form of specific products the task groups might produce (such as a student newspaper, dress codes, etc.), or descriptions of the history of how certain crisis issues were handled or prevented. A report will be prepared summarizing the way the change agents acted in this situation and how their actions helped develop strategies for crisis confrontation or hindered the results achieved.

Usefulness of findings, end products, or results

In view of the possibility of widespread disturbances in schools across the country, it seems probable that many schools will be interested in the techniques employed, the nature and extent of the problems focused on, and the possible steps developed to prevent these future crises. Developing a crisis-confrontation laboratory will allow for training of school people in specific ways of dealing with such events.

Relationship to other Center projects

This project is directly related to the Educational Community Organization project, which is attempting to study how the community makes its voice heard within the councils of school governance. This project attempts to deal with the discontents that develop within the community and the school building itself. Under proper circumstances, parental participation can help bring the community concerns to relevant persons before critical pressures develop. The influence of this project within the community will be an obvious subject for investigation by the Community Organization study.

Project 0404: Use of Small Groups in a Changing School

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
----					Conduct specific group meetings to develop a problem-solving climate.
----					Develop task groups to work on specific problems.
---	--				Field-test and evaluate specific proposed solutions.
	---				Modify planning of original projects.
	---				Data reduction, analysis, and reporting.
		---	------	------	Develop confrontation clinic laboratory material for dissemination to interested schools.
			------	------	Develop format to try out above materials in a laboratory setting.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Use of Small Groups in a Changing School

Investigator F. B. W. Hawkinshire

1 5 2 0 3 2 4 5 5 2 6 ___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 4	B.	Program No.	Teaching the Disadvantaged
9 0 10 4	C.	Project No.	
11 ___ 12 ___	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 3	G.	Class of Activity	Development
18 0 19 7	H.	Approach	Laboratory study (experimental)
20 3 21 0	I.	Educ. level Ultim. Target group	Secondary
22 1 23 0	J.	Ethnic charact. Ult. Tgt. group	Minority groups
24 1 25 0	K.	Demographic Area Ult. Tgt. group	Urban
26 2 27 1	L.	Spec. Char. Ultim. Target group	Culturally deprived
28 0 29 7	M.	Char. Instrumental Target group	Combined educators and non-educators
30 2 31 1	N.	Topical Area Code	Relationship of school with community groups, etc.
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 0 36 1	P.	Acad. Area of Investigator	Psychology
37 ___ 38 ___ 39 ___ 40 ___	Q.	FY Allocation (thousands)	

Project 0405: Small Group Interaction

Principal staff: F. B. W. Hawkinshire

Importance, need, or justification

As new curricular innovations emerge along with demands for restructuring the role of the teacher through team teaching, core teaching, and the like, much more needs to be learned about the teachers' ability to restructure their role concept to include skills for more effective group work. The principal investigator is using the medium of a professional education course to provide a variety of learning situations and teaching styles for teaching interns to examine. Since the need for flexible teaching styles and a redefined concept of the teacher's role is particularly important in teaching the disadvantaged, the project is being carried on within that program.

Purpose, objectives, or goals

1. Assess the learning experience of students involved in a professional education course designed to enlarge their concepts of the teaching-learning process.
2. Determine the sources of most potent influences in the learning experience which help students acquire new concepts of the role of the teacher.
3. Discover the factors which enhance the perceived relevance of course experiences to the students' intern-teaching situation.
4. Discover the context in which learning of both concepts and techniques about teaching is most meaningful for such students.
5. Develop an experimental course which includes those components found to be most potent.
6. Design a pre-service training program which will be more effective in equipping teachers to have an enlarged view of the teaching role.

Method, strategy, or design

The course content is directed at teaching as a form of social interaction. Students are exposed to theoretical statements about the social interaction process. In addition, a series of individual, dyadic, and group experiences make up the bulk of class activity. Opportunity is provided for the students to reflect on these experiences and try to place them within a theoretical context. In addition to these specific activities, each student works with a partner and on a learning team to accomplish specific tasks, e.g., preparing two papers and carrying out an analysis of the classroom behavior of the course instructor and fellow students. As part of this ongoing set of events, students maintain journals in which they are to record their reactions to all phases of the course. Additional ratings of each student are made by the instructor but not passed on to the students. The ratings of the class prepared by the teams and the instructor, and the journals maintained by the students, provide the data for analysis.

Users

Graduate students in training to become secondary school teachers in a variety of disciplines.

Expected end products or results

A training design which will provide experiences necessary for teacher-training programs aimed at developing more broadly trained teachers. Specific curriculum materials to facilitate the development of needed skills. A monograph describing this approach to teacher training and reporting the research data.

Usefulness of findings, end products, or results

Will fill a void currently existing in materials on teacher training. Many efforts have been attempted in the area of teaching teachers to work with groups, but they have not provided a way of putting the theoretical ideas into a specific format designed to achieve the desired objectives.

Relationship to other Center projects

This project is a continuation of the project originally numbered 0106, Teaching in Small Groups, and continued as 0505 under the Heuristic Teaching program. In the latter program the project has been identified as part of Social Interaction (0505), which originally included work by both F. B. W. Hawkinshire and R. H. Koff. (This work is described on pp. 187-188 of the Second Annual Report, where the term "Small Group Research" was used.)

Dr. Koff's work in this area is now being carried on under the project on Microteaching and Intern Data Bank (0503). Since Dr. Hawkinshire's work has particular relevance for teachers of the disadvantaged, as noted above, it will henceforth be carried on in the program on Teaching the Disadvantaged.

The present project extends earlier research in an effort to identify important social variables which can affect teacher training. It is expected that the results of this project can be of significant interest in the program on Heuristic Teaching.

Project 0405: Small Group Interaction

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
------					Design of new or modified instruments for data collection for Phase II.
------					Development or modification of teaching strategies and learning experiences for students for Phase II.
------	------				Data collection and implementation of teaching strategies and learning experiences for Phase II.
		------	------		Data reduction and analysis.
				------	Written reports providing a teaching strategy plan and learning activities for students.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Small Group Interaction

Investigator F. B. W. Hawkinshire

1_5_ 2_0_ 3_2_ 4_5_ 5_2_ 6___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7_0_ 8_4_	B.	Program No.	Teaching the Disadvantaged
9_0_ 10_5_	C.	Project No.	
11___ 12___	D.	Percent of Total Budget	
13_0_ 14_2_	E.	Institution	
15_0_	F.	Legislative Authority	
16_0_ 17_2_	G.	Class of Activity	Development-related research
18_0_ 19_7_	H.	Approach	Laboratory study (experimental)
20_2_ 21_0_	I.	Educ. level Ultim. Target group	Elementary and secondary
22_0_ 23_1_	J.	Ethnic charact. Ult. Tgt. group	General population
24_0_ 25_0_	K.	Demographic Area Ult. Tgt. group	All areas
26_0_ 27_0_	L.	Spec. Char. Ultim. Target group	All areas
28_0_ 29_1_	M.	Char. Instrumental Target group	Professional education personnel
30_5_ 31_2_	N.	Topical Area Code	Affective or social domain
32_0_ 33_0_ 34_0_	O.	Subject matter Field	Not applicable
35_0_ 36_1_	P.	Acad. Area of Investigator	Psychology
37___ 38___ 39___ 40___	Q.	FY Allocation (thousands)	

Program 05: Heuristic Teaching

Coordinator: R. E. Snow

Project Leaders: R. H. Koff, Joan E. Sieber, C. E. Thoresen

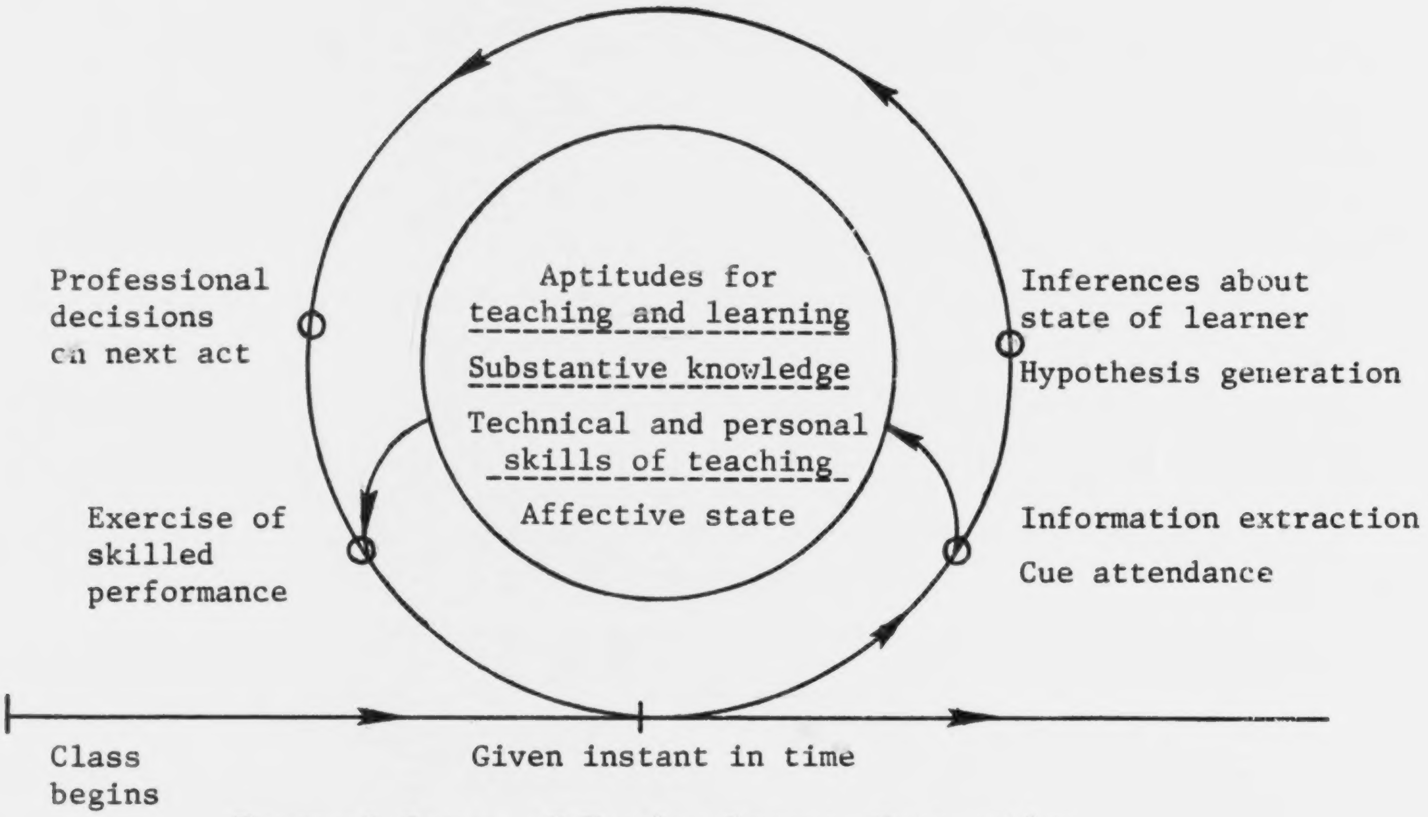
Purpose, objectives, or goals

The general purposes of the Heuristic Teaching program are threefold: (a) to define heuristic teaching functions in education; (b) to understand the psychological processes of heuristic teaching and learning; and (c) to develop means of promoting heuristic teaching and learning in schools.

Importance, need, or justification

The importance and justification of this program was spelled out in detail in the last Annual Report (see pp. 146-155) and need not be reiterated here. Some new phases of the program's activities will be summarized briefly in this section, in order to show how our purposes and justification are becoming elaborated. The months since the new program was established in April 1968 have seen a growing consolidation of many of the strands of previous work in the Center. It is now possible to look forward to an increasingly integrated theoretical framework and definition of objectives which will link the program's research activities in substance as well as administratively, and to envision an increasingly diversified array of products resulting from the program's developmental efforts.

Some of the elements of the growing theoretical framework, and some of the relations between current and proposed projects, are schematized in the following diagram. The diagram identifies cognitive events that are presumably involved in heuristic teaching behavior. One can assume, for example, that at some given instant in an ongoing group discussion a teacher attends to significant cues regarding the course of discussion, makes inferences about the state of confusion in some problem faced by the students, decides on a kind of question or comment designed to open up a new aspect of the problem, and skillfully inserts the question or comment into the stream of discussion. It can further be suggested that both the current course of classroom events and the


Professional decisions on next act
Aptitudes for teaching and learning
Substantive knowledge
Technical and personal skills of teaching
Affective state
Inferences about state of learner
Hypothesis generation
Exercise of skilled performance
Information extraction
Cue attendance
Class begins
Given instant in time

Temporal Course of Teacher-Learner Interaction

teacher's earlier acquisition of skills will have been influenced by that teacher's aptitudes for teaching (and for learning to teach), by his substantive knowledge and repertoire of technical and personal skills, and by his affective or temperamental state at any given moment.

The application of the schema presented above is not limited to the behavior of a group discussion leader; it may be used to examine teaching processes in monitoring and critiquing an individual student's independent study report, in conversations with a parent, in preparing materials for a lesson, or in constructing an achievement test. Further, it is not meant to restrict attention to clearly cyclical patterns of teacher-learner interaction, for among the most important heuristic teaching behaviors may be the identification and pursuit of a new idea happened upon serendipitously in the course of lecturing. The diagram focuses on teaching; left implicit are comparable processes on the learner's side, which are no less important as both interacting and dependent variables for most of the research on teaching proposed here. The schema thus serves only roughly as a guide for this program report, showing how the concerns of the various projects to be described may be related within the cognitive operations of the individual teacher, but it should help specify the nature of the proposed five-year plan for the Heuristic Teaching program.

Method, strategy, or design

The five-year plan and its operation can be envisioned as follows. Pursuing the first objective of the program, we will identify educational activities in which human teacher behaviors appear uniquely useful. Two kinds of activities, leading group discussion and directing independent study, provide good first examples, though it is anticipated that many additional areas of human teacher activity will be isolated for investigation during the next five years. This taxonomic process has been, and continues to be, carried on as an informal activity at the program level, thought it has nominally been listed as part of the Training Studies area. At the same time, the second and third general objectives of the program will be pursued. When understanding of psychological processes (Objective 2) and development of means for promoting heuristic teaching-learning (Objective 3) are cross-tabulated with the cognitive events and variables schematized above, there emerges a clearer identification of both processes to be investigated and products to be sought. Table 1 shows this cross-tabulation for only two of the teacher-activity areas mentioned above.

In Table 1, current and proposed project activities have been entered in the cells where appropriate; blank cells and added columns can be used to direct further explorations and elaboration. The table is meant to be suggestive at this point rather than definitive; clearly some cells may have overlapping content, implying some generality of heuristic teaching styles, and others may require revision as research and development proceeds. But the implications of the table remain regardless of changes within it; five years from now, given proper R&D support and intelligent use of these resources, a general process taxonomy of heuristic teaching styles and a model teacher education program, with detailed content specifications, should be at hand. It can also be expected that significant progress will have been made toward the development of theories relating heuristic teaching behavior and learning outcomes.

TABLE 1A

Teacher Behavior and Characteristics	Teacher Activity: Leading Group Discussion	
	Program Objective:	
	To Understand Processes	To Develop Products
Cue attendance & information extraction	Teacher's ability to receive, remember, & reuse student comments Teacher's awareness of student attention, participation, & other stimuli Sensitivity to student moods & attitudes, changes of opinion, intragroup dynamics Other interpersonal perception skills	Audiotape listening skill program Cue attendance training devices Group process observation & training procedures
Alternative hypothesis & inference generation	Nature of information search, handling, & inferential processes, uncertainty Judgment of student level of cognitive engagement, quality & quantity of knowledge	Hypothesis generation & originality training procedures Treatment arrangements for overcoming anxiety Computer simulation of inquiring student
Professional decisions	Evaluation of alternative questions & answers Differentiation of response depending upon prior information on student Choice of technical & personal skills	Master model videotapes of prof. decision-making Self analysis, self diagnostic evaluative instruments In-basket training on professional decisions
Integration of skilled performance	Sequencing & agility among multiple skills Adaptiveness-flexibility Spontaneity	Practice-teaching programs & exercises Microteaching Clinic
Characteristics of individual:		
Aptitudes for teaching & learning	Nature of aptitude, aptitude development & transfer	Decision rules & materials for assigning students to different teachers or different subgroups in class
Content knowledge	New content learning	
Technical & personal skills	Acquisition of skill	Microteaching & minicourse training programs
Affective states	Anxiety reaction to novel teaching situation	Behavioral assessment techniques
	Warmth, humor, grace	New counseling techniques
	Interpersonal sensitivity	Self & environmental analysis skills

TABLE 1B

	Teacher Activity: Organizing, Monitoring, Critiquing Independent Study Projects	
	Program Objective:	
Teacher Behavior and Characteristics	To Understand Processes	To Develop Products
Cue attendance & information extraction	Detecting errors in student thought	Rapid & critical reading training
Alternative hypothesis & inference generation	Conceptual analysis skill	Inquiry skill training
Professional decisions	Intuitive & analytic judgment in student guidance & counseling Defining instructional objectives Choosing materials & activities Evaluative judgment against standards	Humanistic studies (Suggested program for teachers)
Integration of skilled performance		
Characteristics of individual: Aptitudes for teaching & learning Content knowledge Technical & personal skills Affective states	Nature of obsolescence, unlearning, & relearning of teacher content knowledge	Special purpose school room computer Improved pre- & in-service training & communication for content clusters

Characteristics of users or the sample

During the next five years, the generality of our theory, research, and development will also be explicitly examined. Our intention, as work proceeds and resources permit, is to expand the inquiry both up and down the grade scale from its current focus on middle childhood and secondary education. In particular, expansion is expected into the area of college teaching. The relative absence of critical inquiry into teaching in this increasingly crucial sphere of education has been well documented. The Stanford undergraduate environment should prove particularly appropriate in many ways for examining problems and techniques of heuristic teaching. It is further expected that increasing attention will be given to the limiting or moderating effects of subject-matter on heuristic styles. Quite possibly, some of the most important heuristic devices and patterns of behavior in a given area of teaching may be specific to that area. The Center's past emphasis on the social studies and language areas will be expanded to include explicit attention to other subjects such as science and mathematics, which may have different heuristic components. Finally, we intend to explore teaching functions as they are manifested in a wider context than is apparent in the role of teacher as classically defined. Students, counselors, parents, school administrators, and other members of the general educational community fulfill important heuristic teaching and learning functions. The primary focus of our research and development will remain on the teacher, but the examination of this role as well as each of the others can benefit from systematic interchange of attention among them.

Expected end products or results

See Table 1.

Usefulness

We expect that the findings, products, and results of this program's activities will be useful in the improvement of teaching, as defined by the quantity, quality, and variety of learning outcomes observed in students. We expect further that understanding of heuristic teaching styles will lead to a more general appreciation for the human uses of human teachers, showing how best to integrate human teaching functions with the array of other media and technological developments becoming available for use in schools. The availability of a taxonomy of heuristic teaching and of model training programs should be useful in the improvement of research on teaching and of teacher education in general.

Relation to other Center programs and projects

The relation of this program to earlier work in the Center was detailed in the last Annual Report. Its relation to other current programs was also treated in the last Annual Report, but can be indicated briefly again here. We expect that the work of the Heuristic Teaching program will suggest new approaches to teaching the disadvantaged that can replace the didactic mode of instruction usually seen in ghetto schools. We expect also that the considerations and activities of that program will suggest new conceptions of heuristic teaching styles. Center research on the environment for teaching is also related to the work of this program. We hypothesize that new styles of teaching require new forms of school environment and that new environmental conditions require new styles of teaching. The emphases on the open school and on heuristic teaching grow out of common recognition of needed improvements in education and are, in a sense, analogous concepts arising respectively from sociological and psychological thinking.

Program 05: **Heuristic Teaching** (Page 1 of 2)

PROGRAM TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

FY 69	FY 70	FY 71	FY 72	FY 73	FY 74	Activities
—	—	—	—	—		Definition of heuristic teaching activities.
—	—	—	—	—		Delineation of teacher behavior in each activity.
—	—					Development and evaluation of listening skills program.
	—	—				Beginning of work on teacher decisions and skill integration.
		—	—	—		Beginning of work on skills for independent study and other heuristic teaching.
						* * * * * *
—	—	—				Identification of personal competencies of teachers and counselors and development of techniques to assess these competencies.
—	—	—	—			Development and testing of techniques to strengthen personal competencies.
		—	—	—		Development and dissemination of treatment procedures for use with pre- and in-service personnel.
	—	—	—			Pilot studies of personal competencies in college teaching.
						* * * * * *
-	-	-	-	-		Summer Microteaching Clinic
-	-	-	-	-		Microteaching Conference.
—	—	—	—	—		Longitudinal study of the effects of training on trainee behavior.
—	—	—	—	—		Studies of skill development over time, screening procedures to diagnose teacher weaknesses, skills of social and instructional interaction.

Program 05: Heuristic Teaching (Page 2 of 2)

PROGRAM TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

FY 69	FY 70	FY 71	FY 72	FY 73	FY 74	Activities
						* * * * * *
---	---	---	---	---		Development of concepts toward a theory of instruction based largely on teaching uncertainty generation and reduction skills.
---	---					Literature search on methods of teaching uncertainty generation.
---	---					Study of uncertainty generation and reduction skills in relation to age and socio-economic class variables. Research on methods of teaching students to generate uncertainty.
---	---					Research on methods of teaching students to reduce uncertainty.
---	---	---				Development of model for evaluating information use.
---	---	---	---	---		Study of relationship between discipline areas (their aims and epistemology) and the appropriateness and variation of selected means of teaching uncertainty generation and reduction processes.
	---	---	---	---	---	Testing of applied methods in classroom and teacher training.
		---	---	---		Development of testing and evaluation technique congruent with the aims of teaching for reflective thinking.
---	---					Completion of research and development on means of reducing the undesirable effects of anxiety on cognitive processes.

Project 0501: Training Studies

Principal staff: R. E. Snow

Purpose, objectives, or goals

The Training Studies project is a continuation of previous research directed toward analyses of complex teaching skills and treatment variables affecting the learning of such skills. The purposes of research conducted within the project have been (a) to define and measure individual teaching skills; (b) to design optimal training treatments for the development of such skills in teachers; and (c) to determine the effects of using such skills on learner behavior in the classroom. While the first two objectives continue to be pursued, increasing emphasis will be placed on the third objective, that is, on the analysis of teacher-learner interaction and the effects of such processes on subsequent teacher and learner behavior.

Further objectives also come into view as each teaching skill is examined as part of a teacher's total performance in the classroom rather than simply as a dependent variable in the microteaching laboratory. The combination of training in different skills, their use in different content areas, and especially teacher decisions on when and how best to apply and integrate given skills in teaching, is an increasingly important concern for this project. A related area of research for the project concerns the general belief that teaching should be differentiated to suit the needs of subgroups of students who differ in terms of cognitive ability, personality, or learning style variables. Previous research outside the R&D Center has begun to show evidence that such interactions do in fact exist, but there has as yet been little expansion of these findings to the general area of research on teaching. In the last Annual Report, proposed work on the interaction of teacher and student aptitudes was outlined. It was suggested that the first two phases of research on aptitudes for heuristic teaching and learning would include (a) laboratory experiments with individual teacher-learner dialogues to examine individual differences in teaching and learning style and perhaps learning-to-learn phenomena in both teachers and learners over several dialogue situations; and (b) classroom research to identify teacher characteristics that interact with student aptitudes to facilitate or interfere with instructional outcomes. A third aspect of the proposed research can also be outlined. We hope to begin investigation of an area where teachers can have particularly marked influence over aptitude-instructional treatment interactions, namely, their decisions on the choice or construction of instructional materials for different learners.

Data from three training studies reported on in the last quarterly report will be subjected to further statistical analyses, using supplemental data from the Intern Data Bank and other sources. Of primary concern here will be (a) the long-term retention of technical skills training; (b) the interaction of several skills in classroom teaching; (c) the sequencing of teacher questions and pupil comments in group discussion; and (d) the interaction of teacher aptitudes with skill training treatments. Student achievement and attitude criteria are also available for use along with student aptitude information.

Two new research and development efforts are also planned, but the extent of their execution during the coming year depends on the level of funding obtained by the Center. These studies, involving the development of an audiotape programmed course in effective listening for teachers and cooperation with the Far West Regional Laboratory in the development of a minicourse on questioning skills for social studies teachers, are described in the section on Increased Level of Funding in the Budget Plans portion of this report.

The project's goals are further detailed in Table 1 of the resume for the Heuristic Teaching program and in the time schedule which accompanies this resume.

Importance, need, or justification

The importance of these activities has in part been spelled out elsewhere. Suffice it to say that a growing conception of heuristic teaching skill is made possible by the research outlined above. Questioning and listening skills are regarded as fundamental to heuristic teaching styles. Our plan is to examine these skills in isolation and in combination, in the laboratory and in the field, and in interaction with other characteristics of both teachers and learners. An understanding of the nature of human aptitude in both teachers and learners is also critical to research and development on heuristic teaching. A key concept in our growing definition of heuristic teaching styles is the adaptation of instruction to individual needs. With sufficient research, it is likely that both teacher-training programs and teaching in schools can be differentiated to optimize learning outcomes for individual learners, including both students and teachers in training.

Method, strategy, or design

The methods of research vary across the activities outlined above. Reanalyses of existing data will rely on computer processing using simple and multiple regression methods as well as multivariate analysis of variance. The methodology for the aptitude experiments was outlined in the last Annual Report. The developmental activities called "listening skill program" and "questioning skill minicourse" for short would follow a cyclical plan of materials development and pilot tryout throughout the coming year. It is expected that both products could be given preliminary trials during spring and summer and receive formal evaluation during next summer and fall, if the level of funding for this project could be increased.

Users

Subjects for all research described in this section have been or will be in-service and pre-service teachers and their students at Stanford, San Jose State, and in the school systems affiliated with the Center or with the Far West Lab.

Expected end products or results

End products to be expected include: Technical reports describing the achievements of each of the studies, a minicourse on questioning skills produced by the Far West Lab in cooperation with our R&D Center, and an audiotape programmed course on effective listening produced by the Standord R&D Center (under the reduced funding level, this last product could not be developed during FY 1969).

Usefulness of findings, end products, or results

Results of the research studies should be useful in furthering theoretical conceptions of heuristic teaching skills and in furthering research and development in this area. The two training programs would prove particularly valuable in teacher education at Stanford and elsewhere, since they are to be designed for easy insertion into ongoing in-service and pre-service teacher training programs. The research begun here should also lead to increased understanding of the nature of aptitude. Improved teacher decisions on the subgrouping of students and the differentiation of instructional materials should prove uniquely useful in improving the achievement of individual learners.

Relationship to other Center projects

The studies described here are closely related to prior activities, growing out of the earlier technical skills research of F. J. McDonald and the earlier aptitude research of L. J. Cronbach and R. E. Snow. The studies function also to integrate activities in this project with other areas of the Heuristic Teaching program in an emerging theoretical framework described in the program resume. The increasing attention to differences among teachers and learners in the Training Studies project has also highlighted areas where the Disadvantaged program and this research project may be mutually supportive.

Project 0501: Training Studies (Page 1 of 2)

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
-----	-----				Data preparation on past studies, new rating and coding of some previous tapes.
	-----	-----			Computer analyses and interpretation.
		-----	-----		Report preparation and completion.
					* * * * *
-----					Examine existing effective listening programmed materials.
-----	-----				Preliminary development of school-relevant parallels to existing programmed materials.
	-----	-----			Expansion of program and tryout with single teachers, revisions.
		-----	-----		Experimental analysis with group of interns, follow-up in fall.
			-----	-----	Further research uses in skills training.
			-----	-----	Final revision and publication. (Note: Timing of above sequence dependent on level of funding.)
					* * * * *
-----	-----				Review literature on teacher questioning and student cognitive skills.
-----	-----				Collect social studies materials and identify topics previously discussed.
	-----	-----			Obtain data on types of questions now used by teachers.
	-----	-----	-----		Identify effective questions, rated for quality.

(Continued on next page)

Project 0501: Training Studies (Page 2 of 2)

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
	------	------	------		Identify treatment variables to be manipulated in alternative versions.
		------	------	------	Production of minicourse materials.
			------	------	Tryouts and experiments in in-service programs in schools. (Note: Timing of above sequence dependent on level of funding.)
					* * * * *
------	------				Review of literature on interaction of teacher-learner characteristics.
------	------				Pilot lab experimentation on teacher-learner dialogues.
		------	------		Main lab experiment on teacher-learner dialogues.
			------	------	Data analysis and interpretation.
				------	Report preparation.
		------	------	------	Examination of transcripts for use in attempts at computer simulation of inquiring student.
				------	Simulation program begun if warranted.
------	------	------			Classroom observation, review of observation instruments, and teacher interviews on differential teacher behavior in materials choices and teaching for different students.
		------	------	------	Pilot research on classroom aptitude interaction variables and planning of main studies.
			------	------	Report preparation for pilot studies.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Training Studies

Investigator R. E. Snow

1 5 2 0 3 2 4 5 5 2 6	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 5	B.	Program No.	Heuristic Teaching
9 0 10 1	C.	Project No.	
11 12	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 2	G.	Class of Activity	Development-related research
18 0 19 7	H.	Approach	Laboratory study (experimental)
20 5 21 1	I.	Educ. level Ultim. Target group	Master's level
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 0 27 0	L.	Spec. Char. Ultim. Target group	Not applicable
28 4 29 0	M.	Char. Instrumental Target group	Trainers of teachers
30 3 31 0	N.	Topical Area Code	Instructional systems and practices
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 0 36 1	P.	Acad. Area of Investigator	Psychology
37 38 39 40	Q.	FY Allocation (thousands)	

Project 0503: Microteaching and Intern Data Bank

Principal staff: Robert H. Koff

Importance, need, or justification

Microteaching has proved to be a valuable analytical approach to the understanding and improvement of the training of teachers. It has been particularly useful in improving specific teaching skills related to the areas of instructional design and interpersonal interaction. The Microteaching Clinic has served the Center as a laboratory for carefully controlled experiments, and the Intern Data Bank has provided a valuable store of information about teachers in training. Historically, research has focused on changes in teacher behavior as a function of a given instructional program. A basic need, which will be met by the planned research, is not only to assess short-run changes in teacher behavior as a function of training but to continue this assessment over a five-year period.

Purpose, objectives, or goals

The goals of this research project rest on the assumption that teacher trainees can be taught specific skills of social and instructional interaction. The project therefore seeks to:

1. Assess the effects of training upon teacher-trainee behavior and the behavior of the students trainees teach.
2. Collect and analyze, over a five-year period, longitudinal data obtained from trainees prior to, during, and after training.
3. Examine the effects of training on the trainee's ability to utilize structured feedback as a means of modifying his own teaching behavior.
4. Assess the effects of training on the trainee's ability to create an effective classroom environment for learning, increase meaningful retention and transfer by students, and increase student satisfaction with school activities.
5. Improve the criteria for admission into teacher-training pro-programs.
6. Train teachers to be diagnosers and evaluators of the social system of which they are vital participants.

7. Continue to develop the Microteaching Clinic as a teaching-learning laboratory for the Center, and develop a crisis laboratory which can simulate and evaluate the impact of "typical" crisis situations that teachers face daily.
8. Develop and evaluate a taxonomy of teacher personality and aptitude variables as they interact with training strategies.
9. Disseminate principles of instruction and evaluation derived from microteaching and the crisis-laboratory approach to the training of teachers.
10. Develop research methodology for studying and evaluating the effects of training on both trainees and the students they teach.

Method, strategy, or design

The research program serves as an integral part of the intern training experience at Stanford. It is organized as a clinic that begins during the summer quarter and continues throughout the training year. Microteaching allows the systematic collection and evaluation of videotapes of trainees' teaching behavior. Ratings of such variables as pupil attention, the teacher's ability to structure verbal behavior, pupil attitude toward lessons, and the like are easily obtained from videotape stored in the Intern Data Bank. In addition, each trainee completes a series of questionnaires which allow assessment of the linkage between teacher aptitude-personality variables and actual teaching performance. A variety of techniques and research designs are thus available for research in this project.

Characteristics of users or the sample

The sample has recently consisted of 160 secondary interns enrolled in the Stanford Secondary Teacher Education Program, 40 elementary teaching interns enrolled in San Jose State College, and selected teachers from school districts located throughout the state of California. Users of the project's results include all those interested in teaching or in teacher training.

Expected end products or results

Microteaching has already been adopted in some form by a number of other teacher-training institutions and has provided the developmental thrust for a series of minicourses created by the Far West Regional Laboratory. It is expected that studies of specific skills related to social and instructional interaction will result from the project's future research efforts. Skill development over time, comparisons of performance on predetermined lessons vs. nonstructured lessons, and screening procedures to diagnose teacher weaknesses are among the questions under investigation. In addition, it is hoped that a five-year longitudinal study of the effects of training on trainee behavior will provide significant information about the design of teacher-training experiences. Currently-projected publications of the project will include reports of research, a training manual on the use of videotape techniques by supervisors and teachers, and teacher-training materials for the diagnosis and evaluation of social systems.

Usefulness of findings, end products or results

The Microteaching Clinic and Intern Data Bank have great potential as a resource for examining the natural history of teacher-training experiences and as a vehicle for developing and disseminating research findings. Videotapes and questionnaires now stored in the data bank provide examples of basic teacher-student behaviors for current research and can also be reanalyzed according to a variety of theoretical systems to serve the purposes of future research. Operation of the longitudinal data bank over a period of years should provide empirical support for and theoretical inputs to the design of training experiences for teachers. The publications mentioned should have a further influence on teacher training and practice. Finally, the Microteaching Clinic serves as a useful demonstration and dissemination vehicle for the results of other current Center research and development efforts.

Relationship to other Center projects

The current project combines the closely-related projects previously identified as 0502, Intern Data Bank, and 0503, Microteaching Clinic. Research and development in this project are closely related to other studies in the Heuristic Teaching program. The project provides a laboratory in which ideas related to aptitude-treatment interactions can be examined in detail. More importantly, the Data Bank and the Microteaching Clinic provide a forum in which specific studies can be related to one another. The project thus serves as a resource for all Center projects as well as an initiator and stimulator of basic and applied teacher-training research.

Project 0503: Microteaching and Intern Data Bank

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters FY 69 1st	2nd	3rd	4th	FY 70 5th	Activities
-----	-----				Review literature on teacher-training evaluation. Design or modify instruments for data collection. Carry out new rating and coding of data in data bank. Plan for longitudinal study of interns.
-----	-----				Plan intern training program in light of findings derived from summer 1968.
---	-----	-----	-----	-----	Plan and implement a supervisory training program; evaluate and prepare report.
		-----	-----	-----	Collect data from incoming interns pre-training, during training, and after training.
		-----	-----	-----	Implement summer program and continue threads of training through academic year.
			-----	-----	Analyze data, prepare report, revise or modify instruments for data collection.
				-----	Identify treatment variables that had most effect and revise course of instruction.
				-----	Prepare manual on videotape techniques for supervisors and teachers.
				-----	Prepare manual for diagnosing and evaluating classroom social systems.
-----	-----	-----	-----	-----	Serve as a demonstration laboratory for visitors.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Microteaching and Intern Data Bank

Investigator R. H. Koff

1 5 2 0 3 2 4 5 5 2 6 ___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 5	B.	Program No.	Heuristic Teaching
9 0 10 3	C.	Project No.	
11 ___ 12 ___	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 2	G.	Class of Activity	Development-related research
18 0 19 9	H.	Approach	Longitudinal study
20 5 21 1	I.	Educ. level Ultim. Target group	Master's level
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 0 27 0	L.	Spec. Char. Ultim. Target group	Not applicable
28 4 29 0	M.	Char. Instrumental Target group	Trainers of teachers
30 3 31 0	N.	Topical Area Code	Instructional systems and practices
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 0 36 1	P.	Acad. Area of Investigator	Psychology
37 ___ 38 ___ 39 ___ 40 ___	Q.	FY Allocation (thousands)	

Project 0504: Uncertainty Studies

Principal staff: Joan E. Sieber

Importance, need, or justification

Psychologists generally hold that original thinking occurs only if there is an impasse in one's usual train of thought, as when he finds that he is uncertain or cannot understand something. It is also generally held that one way individuals learn to reduce such uncertainty is by searching their memory or environment for relevant information. Thus, uncertainty may be a major stimulus for both thinking (i.e., exploring new relationships) and learning.

To state the matter more negatively, individuals often apply old solutions to new problems because they see ways in which old and new problems resemble one another but overlook the dissimilarities. This kind of thinking permits individuals to act quickly and with a (false) sense of confidence. It may lead, moreover, to wrong solutions and failures to develop new insights, goals and strategies. Clearly, this style of thinking is not adaptive for the present generation of students, who face a variety of problems which the present adult generation has neither defined nor solved. A more creative style of thinking is called for. Yet research shows that teachers often foster this uncreative kind of thinking by rewarding quick answers and the sense of certainty.

There is thus a need for helping both students and teachers to learn (a) to recognize and avoid what we call inappropriate certitude, and (b) to recognize, generate, and finally reduce what we call subjective uncertainty.

Purpose, objectives, or goals

The first purpose of the project is to discover ways of teaching individuals (ages kindergarten through college) to recognize, generate, and reduce subjective uncertainty. Uncertainty generation and reduction involve many processes and abilities: awareness that a satisfactory solution is not known for certain, generation of solution alternatives, attention to relevant information, ability to delay responding, ability to remember relevant information, ability to cope with affect that would otherwise interfere with these processes, ability to understand causal, disjunctive, and probabilistic relationships, and ability to evaluate inferences in relation to evidence. The

Uncertainty project has begun research on all but the last two variables listed above. The ultimate intent of the project is to produce a set of training and evaluation tools that will (a) communicate to teachers the theory underlying the "uncertainty generation and reduction training" approach to teaching; (b) aid in diagnosing the extent to which teachers and students characteristically manifest various aspects of uncertainty generation and reduction; (c) help teachers learn to employ the various methods developed for teaching children to generate and reduce uncertainty; and (d) assess the usefulness of each of the uncertainty generation and reduction skills for the various intellectual disciplines or study areas, and develop methods of teaching these skills in the respective study areas.

Stated more broadly, the Uncertainty project is intended to develop teaching methods which will reverse the trend toward inappropriate certitude by educating students to think about new possibilities rather than training them to apply old solutions. It will involve finding ways to teach students to inform themselves about alternative means or points of view, and to acquire information in order to evaluate these alternatives. It involves teaching students to delay decision when practical, but also to make decisions in the face of uncertainty when required, and to re-evaluate decisions when given additional information.

Method, strategy, or design

In the work thus far, case study and correlative methods have been employed to examine the kinds of inappropriate certitude characteristically expressed by students and teachers and to explore their personality, age and social class correlates. However, the experimental method is the chief method employed to date, and the one that will be used to test the efficacy of various uncertainty training methods. Experimental methods which produce desired results will then be developed into teaching methods. The exact way in which teacher-training methods will be developed has not yet been worked out, but it is anticipated that existing microteaching techniques will be used.

Models of information utilization and evaluation are required as standards for comparison of the results of various training techniques. The Brunswikian lens model of judgment under conditions of uncertainty, which was developed in the field of perception, and the Bayesian model of information use in decision making will be adapted for this purpose.

Characteristics of users or sample

The subjects in experiments to date have been teacher-training students at Stanford and San Jose State College, and elementary and high-school students in Palo Alto, Mountain View, San Jose and Redwood City areas. The users of the results include all those interested in teaching and teacher training.

Expected end products or results

The aim of the project is to provide teachers at all levels of elementary and high schools with four kinds of products: (a) a theory of instruction based on uncertainty-generation and reduction processes; (b) methods of diagnosing the extent to which teachers are using these skills and the effectiveness of various techniques with students; (c) sets of videotape examples, manuals of instruction, and recommendations for curricular revision to enable teachers to learn and to use these techniques; and (d) materials and a system for evaluating the effectiveness with which students have learned to think reflectively.

To produce these end products, the project must accomplish the following: (a) Evaluation of the feasibility of techniques and their variations in relation to age and aptitude variables of students. (b) Detailed examination of curricula at all grade levels to determine the kind of knowledge and intellectual skills which may most effectively be developed by application of uncertainty-training techniques. Techniques would then be tailored to curricula accordingly. (c) Development of a teacher-training program which would provide teachers with the ability to teach students to inquire, to generate alternatives, and to evaluate them. This involves orienting teacher trainees to a nontraditional philosophy with respect to the intellectual authoritativeness of teachers, the nature of constructive learning activities, and the nature of knowledge. (d) Development and testing of a model of information evaluation, and its application to specific school-learning situations.

Usefulness of findings, end products, or results

The importance of teaching critical examination of one's intellectual and physical environment has long been stressed. However, no presently existing theory precisely delineates the nature of such instruction. It is now especially appropriate that this heuristic facet of teaching be developed in human teachers so that they may complement the didactic contribution of non-human teaching devices. The Uncertainty project is expected to produce knowledge and materials which will meet this need. We may thereby assure that teachers will continue to perform a valuable function which is presently beyond the flexibility and branching capacities of computers.

Relationship to other Center projects

The Uncertainty project is an integral part of the Heuristic Teaching program. For example, we anticipate that insecurity will be experienced by some teachers when using these open-ended teaching techniques. C. E. Thoresen is currently developing counseling techniques which, it is hoped, will deal with these and other teacher problems engendered in teacher-pupil relations. However, Thoresen is concerned with anxiety-reducing techniques of a different nature than are utilized in the Uncertainty project. Studies comparing the efficacy of different techniques for dealing with anxiety are anticipated. The aptitude-treatment interaction paradigm is being utilized in the hope of individualizing treatments. It is also expected that aptitude-treatment interactions investigated in the Training Studies project will be applicable to this project.

In the Center's emphasis on teaching the disadvantaged, uncertainty measures and techniques originating in the Uncertainty project are being applied to research with the underprivileged. The results will be incorporated in the Uncertainty project's continuing plans.

Project 0504: Uncertainty Studies

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
------					1. Analysis and write-up of experiments by Moore, Crockenberg, Stein, and Engle.
------	------				2. Completion of literature review on theory, method, and data relevant to development of proposed uncertainty training techniques.
------	------				3. Development, application, and testing of memory support and other techniques in elementary and high school setting.
		------			4. Analysis of data from (3).
			------	------	5. Further experimentation concerning techniques for avoiding the undesirable effects of anxiety.
			------	------	6. Dissemination of materials on use of techniques developed (3 and 5).
------	------				7. First experimental (pilot test) application of uncertainty training techniques in actual classroom settings.
		------			8. Analysis of data from (7), and developing materials for 9 and 10.
------	------	------	------	------	9. Development of models and methods of teaching students to evaluate alternatives.
			------	------	10. Application of tasks and tests based on uncertainty eliciting techniques. (Classroom experiment; see pp. 165-7, 1968 Annual Report.)
			------	------	11. Application of uncertainty training by teachers in experimental setting (see Annual Report, pp. 165-7, for more complete description of experiment). (Note: Timing of items 10 and 11 dependent on level of funding.)

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Uncertainty Studies

Investigator J. E. Sieber

1_5_ 2_0_ 3_2_ 4_5_ 5_2_ 6___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7_0_ 8_5_	B.	Program No.	~~Heuristic Teaching~~
9_0_ 10_4_	C.	Project No.	
11___ 12___	D.	Percent of Total Budget	
13_0_ 14_2_	E.	Institution	
15_0_	F.	Legislative Authority	
16_0_ 17_2_	G.	Class of Activity	Development-related research
18_0_ 19_7_	H.	Approach	Laboratory study (experimental)
20_0_ 21_1_	I.	Educ. level Ultim. Target group	All ages
22_0_ 23_1_	J.	Ethnic charact. Ult. Tgt. group	General population
24_0_ 25_0_	K.	Demographic Area Ult. Tgt. group	All areas
26_0_ 27_1_	L.	Spec. Char. Ultim. Target group	General population
28_0_ 29_1_	M.	Char. Instrumental Target group	Professional education personnel
30_5_ 31_1_	N.	Topical Area Code	Cognitive functions
32_0_ 33_0_ 34_0_	O.	Subject matter Field	Not applicable
35_0_ 36_1_	P.	Acad. Area of Investigator	Psychology
37___ 38___ 39___ 40___	Q.	FY Allocation (thousands)	

Project 0506: Personal Competencies

Principal staff: Carl E. Thoresen, Project Leader; Dr. Barbara Varenhorst, Palo Alto Unified School District, Consultant

Importance, need, or justification

Creating effective and efficient training strategies for enhancing the personal effectiveness of educational workers is of crucial importance. Little is currently known about how to train and retrain educators to deal with the wide array of interpersonal problems confronting them. Elementary and secondary classroom teachers have received virtually no specific training in improving their own personal-social competencies and in learning techniques of behavioral analysis. School counselors, paradoxically, have not been specifically trained to work effectively with "significant others"--teachers, parents, and administrators. Their effectiveness has thereby been substantially diminished. Critically needed is a programmatic research effort of an experimental-longitudinal nature to create and systematically assess innovative ways of teaching personal competencies to pre- and in-service teachers and counselors working at various age-grade levels.

Purposes, objectives, or goals

1. Develop methods for increasing the personal effectiveness of teachers and counselors with students and colleagues of various age and grade levels.
2. Develop and evaluate treatment procedures based on principles of human learning such as counterconditioning, operant conditioning, and observational learning.
3. Train teachers in behavioral analysis skills for use in interpersonal situations.
4. Explore the use of different behavioral assessment techniques in identifying persons with inadequate personal competencies.
5. Assess the generalization effects of specific behavior changes, as identified by self-reports, observer ratings, and physiological measures, to other areas of personal functioning.

6. Individualize treatment and evaluation procedures by using multiple baselines, treatment reversal procedures, cumulative records, and specific goals for subjects, and examine subject-treatment interaction effects.
7. Create a series of training and retraining procedures which can be demonstrated and then disseminated to educational training institutions and to school districts.
8. Explore the feasibility of working with college teachers, advisors, and counseling personnel at Stanford on personal competency problems.

Method, strategy, or design

The overall project will involve intern teachers and counselor trainees in the Stanford School of Education and counselors and teachers in the Palo Alto Unified School District. Work is under way at present with Stanford teaching interns and with counselors and teachers in Palo Alto. Preliminary work will begin in the winter and spring quarters of 1969 with Stanford counselor trainees in the School of Education.

The basic strategy will proceed through the following steps:

1. Select interns and trainees, with attention to identifying particular deficiencies in personal competencies.
2. Obtain baseline performance data in several real and simulated situations.
3. Administer one of several treatment procedures.
4. Assess performance changes by repeated self-report, observer, and physiological measures.
5. Administer additional treatments in various combinations to some subjects, continuing to assess performance for all participating subjects.
6. Use active and no-contact control group procedures.

Users

Teachers and counselors at the K-12 and college level.

Expected end products or results

Expected results will include: (a) evidence of the effectiveness of several treatment procedures in altering specific interpersonal behaviors of counselors and teachers in training; (b) preliminary development of an in-service training program for employed counselors and teachers; (c) preliminary information on how to initiate a teaching program to prepare counselors-in-training to work effectively with teachers and other educational personnel; and (d) data on the feasibility of initiating personal competency research with Stanford University teachers and counseling personnel.

Usefulness of findings, end products, or results

Little is known about how to assess and modify inadequate or inappropriate interpersonal behaviors of teachers and counselors in training and in the field, or about what happens in the classroom and in other life situations when teachers and counselor improve their personal competencies. This project combines the advantages of longitudinal and experimental research in obtaining evidence as to which techniques or combinations of techniques help individuals alter and then maintain their personal effectiveness. Counselor-training programs need procedures for preparing counselors to help teachers with their personal problems. The results of the project should add to our knowledge and eventually contribute to changes in teacher and counselor behavior.

Relationship to other Center projects

The Stanford Center has been concerned with the systematic investigation of teaching. This project extends that concern into a long-neglected area, that of the personal effectiveness of teachers. Further, it contributes to the Heuristic Teaching program of the Center by exploring how specific interpersonal behaviors of teachers in the classroom influence the behavior of students and of other educational personnel. In addition, it provides a much-needed inquiry into the teaching of counselors, both in training and in-service, to assist teachers with their personal concerns. Finally, it suggests, through the proposed feasibility study, the possibility of expanding the focus of the Center to include problems of teaching at the college level.

Project 0506: Personal Competencies

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Page 1 of 2

Quarters FY 69 1st	2nd	3rd	4th	FY 70 5th	Activities
-----	-----				Review literature for anxiety-reduction techniques and counterconditioning-avoidance learning.
-----	-----				Resident counselors in school select teachers and begin improving their personal competencies.
-----	-----	-----			Train resident counselors.
-----	-----				Assign interns to treatment groups and initiate treatment.
-----					Train project staff to administer treatments.
-----	-----				Operationalize physiological telemetry and audio system.
-----	-----				Assess changes by self-report, observer and physiological measures.
	-----	-----			Evaluate and modify resident counselor training program.
		-----			Identify competencies problems in new teaching intern group.
		-----	-----		Select and train new project personnel.
		-----	-----		Initiate preliminary inquiries about competencies problems of Stanford faculty and staff.
			-----		Identify and examine possible training programs for supervising teachers of interns.

Project 0506: Personal Competencies

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Page 2 of 2

Quarters					Activities
FY 69				FY 70	
1st	2nd	3rd	4th	5th	
			-----		Identify counselor trainees with competency problems.
			-----	-----	Explore possibility of pilot program for training Stanford teacher and personnel group.
			-----	-----	Initiate experimental treatment groups for counseling interns.
			-----	-----	Select three local secondary schools and start counselor re-training.
		-----	-----		Prepare report of results with teaching interns.
		-----	-----		Prepare report of results with resident counselors.
			-----	-----	Follow-up teaching interns (1968-69) in field settings--self-report, observer and physiological measures.
			-----	-----	Explore feasibility of selecting trained interns to work with new interns and trained resident counselors to work with counselor trainees.
				------	Begin treatment of teachers in three local secondary schools.
				------	Present preliminary results of competency project at professional meetings.
				------	Plan workshop for in-service counselors on techniques of assisting teachers (June 1970).
				------	Examine feasibility of using competency techniques and materials at other teacher training institutions.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Personal Competencies

Investigator C. E. Thoresen

1 5 2 0 3 2 4 5 5 2 6 ___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 5	B.	Program No.	Heuristic Teaching
9 0 10 6	C.	Project No.	
11 ___ 12 ___	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 2	G.	Class of Activity	Development-related research
18 0 19 7	H.	Approach	Laboratory study (experimental)
20 5 21 1	I.	Educ. level Ultim. Target group	Master's level
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 0 27 0	L.	Spec. Char. Ultim. Target group	Not applicable
28 0 29 1	M.	Char. Instrumental Target group	Professional education personnel
30 5 31 2	N.	Topical Area Code	Affective or social domain
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 1 36 3	P.	Acad. Area of Investigator	Guidance and counseling
37 ___ 38 ___ 39 ___ 40 ___	Q.	FY Allocation (thousands)	

Project 0602: Nonintellective Effects of Educational Technology: The Computer as an Authority Figure for Pupils

Principal staff: R. D. Hess, Maria D. Tenezakis

Purpose, objectives, or goals

A series of studies will be conducted aimed at understanding the nonintellective effects of educational technology upon children, particularly upon their attitudes and orientation toward machines as sources of information and "authoritative" answers.

Objectives for the following period include:

1. Visit the Stanford Computer Assisted Instruction Laboratory and schools in the area using teaching machines.
2. Draft interview schedule to be used with parents and teachers.
3. Draft interview schedule to be used with children.
4. Decide about the age range of children to be interviewed.
5. Contact school principals and decide about the grade levels from which we will draw children for the pilot interviewing.
6. Recruit and instruct interviewers.
7. Pilot interviews with children, teachers, and parents.

Importance, need, or justification

The importance of the research to the field of education and to research in teaching lies in the information that the study might obtain about the effects variation in teaching techniques (machine vs. human) have upon a cluster of attitudes and beliefs which play a significant role in an individual's modes of processing information, especially in those responses which regulate the acceptance or rejection of information offered by competing media in the environment. In addition, knowledge of the effectiveness of the machine in teaching children from different backgrounds and with different preferences in intake modalities would be useful. Perhaps most significant is the information the study might provide with respect to the role of the human teacher in a classroom populated with non-human teachers and the implications of this information for long-term planning in programs of teacher training.

Method, strategy, or design

Since the project is still in the exploratory or pilot stage, no set method or design has yet been established.

Characteristics of users or the sample

To be decided.

Expected end products or results

Report, conference and convention presentations, and articles.

Usefulness of findings, end products, or results

The project has relevance for teacher training as well as basic research.

Relationship to other Center projects

This project is related to the heuristic teaching interests of the Center and to the role of the teacher as it may be modified by technology.

Project 0602: Nonintellective Effects of Educational Technology: The Computer as an Authority Figure for Pupils

PROJECT TIME SCHEDULE

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Quarters					Activities
FY 69 1st	2nd	3rd	4th	FY 70 5th	
----					Analyze information collected from preliminary interviews; reevaluate preliminary hypotheses.
---					Develop instruments and settle on sample.
---	------				Pilot study.
------	------				Contacts with school principals, etc. for sampling purposes; secure cooperation from sample.
		------			Data processing and identification of salient variables for further investigation.
			------		Main study.
				------	Analysis of data and report.

Project 0704: Methodology Unit

Principal staff: R&D Associates: Janet D. Elashoff, R. W. Heath; Robert Proctor, programmer; Catherine Lin, junior statistician

The Methodology Unit is responsible for assisting other Center projects with research planning and data analysis. Assistance with research and development planning includes helping to: develop concrete research goals, suggest and evaluate alternative research strategies, evaluate existing measuring instruments and develop new ones, design safeguards for trouble spots in the experimental situation, suggest and evaluate alternative modes of data analysis, suggest efficient methods of data collection and coding, suggest quality control procedures for the data collection process, suggest additional analyses to deal with specific problems in the collected data, interpret the results of statistical analyses, and suggest design improvements for future experiments.

The Methodology Unit is also responsible for the computer processing of data collected by Center projects. This responsibility includes: suggesting an appropriate plan for the steps in the data analysis, suggesting appropriate computer programs, listing and carrying out the detailed steps involved in disk storage of the data, Wylbur manipulation of the data set, and statistical analysis on the computer.

To carry out its responsibilities in research planning and data analysis the Methodology Unit conducts methodological research, develops a social science computer program library, and maintains a weekly forum for discussion of Center projects.

Center projects often involve complex research designs and hypotheses and special data problems for which standard statistical procedures are inadequate. Thus the Methodology Unit must develop new statistical procedures tailor-made for the data analysis needs of the Center. Four particular problems will receive attention in the coming year: (a) developing an analysis of covariance procedure for use with a fallible covariate; (b) developing new procedures for in-depth analysis of repeated measures designs; (c) developing new procedures for use in problems with missing data, and (d) exploring procedures for dealing with multiple criterion variables.

The Unit must maintain and improve existing computer programs for data analysis, adapt programs developed elsewhere for Center use, and develop new programs for specific Center needs. In the coming year, the Unit will develop specific programs to perform (a) non-parametric analyses; (b) covariance analysis with a fallible covariate; and (c) simple linear regression when data are missing at random.

Project 0102: Technical Skills of Teaching: Explaining

Principal staff: N. L. Gage

The purpose, importance, and design of this project, and some of its results, have been set forth in previous reports, most recently in the Second Annual Report, pp. 31-39, and Quarterly Report No. 11, pp. 6-7. End products already developed include Research Memorandum No. 10; four papers presented at the meeting of the American Educational Research Association in February 1968 (to be summarized in a forthcoming book); and doctoral dissertations by Barak Rosenshine and W. R. Unruh. The research should be useful in planning studies of the effectiveness of the teacher's explaining behavior. These studies grew out of the Center's earlier focus on behavioral aspects of teaching and are also related to heuristic teaching, since explaining behavior can reasonably be expected to remain an essential part of the teacher's repertoire.

Studies currently being completed under this project will henceforth be reported under Project 0503, Microteaching and Intern Data Bank.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Technical Skills of Teaching: Explaining

Investigator N. L. Gage

1 5 2 0 3 2 4 5 5 2 6 ___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 1	B.	Program No.	The Behavioral Domain
9 0 10 2	C.	Project No.	
11 ___ 12 ___	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 7 1	G.	Class of Activity	Research
18 0 19 7	H.	Approach	Laboratory study (experimental)
20 2 21 0	I.	Educ. level Ultim. Target group	Elementary and secondary
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 0 27 1	L.	Spec. Char. Ultim. Target group	General population
28 0 29 1	M.	Char. Instrumental Target group	Professional education personnel
30 3 31 0	N.	Topical Area Code	Instructional systems and practices
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 0 36 1	P.	Acad. Area of Investigator	Psychology
37 ___ 38 ___ 39 ___ 40 ___	Q.	FY Allocation (thousands)	

Project 0103: Technical Skills of Teaching: Foreign Language

Principal staff: R. L. Politzer

Purpose, method, importance, and end products of this project have been described in the First and Second Annual Reports and in various quarterly reports. The project's training syllabi and its dissemination efforts have been of considerable use to teachers of French and Spanish.

The project has represented a major effort to apply the technical skills of teaching concept to a specific subject field. As such, it stands as a successful example of cross-fertilization within the Center's focus and structure.

This project will be completed during the current fiscal year. A technical report summarizing its findings and accomplishments is in preparation.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Technical Skills of Teaching: Foreign Language

Investigator R. L. Politzer

1 5 2 0 3 2 4 5 5 2 6 ___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 1	B.	Program No.	The Behavioral Domain
9 0 10 3	C.	Project No.	
11 ___ 12 ___	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 3	G.	Class of Activity	Development
18 2 19 0	H.	Approach	Development
20 2 21 0	I.	Educ. level Ultim. Target group	Elementary and secondary
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 0 27 1	L.	Spec. Char. Ultim. Target group	General population
28 1 29 0	M.	Char. Instrumental Target group	Instructional staff
30 3 31 1	N.	Topical Area Code	Curriculum
32 2 33 0 34 5	O.	Subject matter Field	Languages, Foreign
35 2 36 2	P.	Acad. Area of Investigator	Other
37 ___ 38 ___ 39 ___ 40 ___	Q.	FY Allocation (thousands)	

Project 0105: Technical Skills of Teaching: Role-Playing

Principal staff: Fannie R. Shaftel

This project, described in previous reports of the Center, is awaiting completion of a training film, user's manual, and research and development memorandum as its end products.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Technical Skills of Teaching: Role-Playing

Investigator F. R. Shaftel

1 5 2 0 3 2 4 5 5 2 6 ___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 1	B.	Program No.	The Behavioral Domain
9 0 10 5	C.	Project No.	
11 ___ 12 ___	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 2	G.	Class of Activity	Development-related research
18 3 19 0	H.	Approach	Combination approach
20 2 21 0	I.	Educ. level Ultim. Target group	Elementary and secondary
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 0 25 0	K.	Demographic Area Ult. Tgt. group	~~All areas~~
26 0 27 1	L.	Spec. Char. Ultim. Target group	General population
28 0 29 1	M.	Char. Instrumental Target group	Professional education personnel
30 0 31 0	N.	Topical Area Code	Not applicable
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 1 36 0	P.	Acad. Area of Investigator	Education
37 ___ 38 ___ 39 ___ 40 ___	Q.	FY Allocation (thousands)	

Project 0201: Teacher Attitudes and Their Correlates

Principal staff: N. L. Gage

This project's purpose, importance, and methodology are set forth in the Center's First Annual Report (pp. 67-68) and Second Annual Report (pp. 98-99). End products include research memoranda and journal articles; inputs into the Center's Intern Data Bank; and an Educational Opinion Inventory. The findings will be of use in understanding the relationships between teachers' attitudes and a number of other variables. Originally developed as part of the program on the personological domain, the project has been suspended during the principal investigator's sabbatical.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Teacher Attitudes and Their Correlates

Investigator N. L. Gage

1 5 2 0 3 2 4 5 5 2 6 ___	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 2	B.	Program No.	The Personological Domain
9 0 10 1	C.	Project No.	
11 ___ 12 ___	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 1	G.	Class of Activity	Research
18 0 19 7	H.	Approach	Laboratory study (experimental)
20 2 21 0	I.	Educ. level Ultim. Target group	~~Elementary and secondary~~
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 0 27 1	L.	Spec. Char. Ultim. Target group	General population
28 0 29 1	M.	Char. Instrumental Target group	~~Professional education personnel~~
30 5 31 2	N.	Topical Area Code	Affective or social domain
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 0 36 1	P.	Acad. Area of Investigator	Psychology
37 ___ 38 ___ 39 ___ 40 ___	Q.	FY Allocation (thousands)	

Project 0202: Teachers' and Pupils' Cognitive Preferences in Mathematics

Principal staff: R. W. Heath

This project was fully described in the Second Annual Report, pp. 100-106. Its findings will be useful to educational researchers, mathematics educators, and educational psychologists.

Date 10/15/68

TAXONOMY CODE SHEET
(Form II)

Project Title Teachers' and Students' Cognitive Preferences in Mathematics

Investigator R. W. Heath

1 5 2 0 3 2 4 5 5 2 6	A.	Center Bureau No.	Stanford Center for Research and Development in Teaching
7 0 8 2	B.	Program No.	The Personological Domain
9 0 10 2	C.	Project No.	
11 12	D.	Percent of Total Budget	
13 0 14 2	E.	Institution	
15 0	F.	Legislative Authority	
16 0 17 1	G.	Class of Activity	Research
18 0 19 7	H.	Approach	Laboratory study (experimental)
20 2 21 0	I.	Educ. level Ultim. Target group	Elementary and secondary
22 0 23 1	J.	Ethnic charact. Ult. Tgt. group	General population
24 0 25 0	K.	Demographic Area Ult. Tgt. group	All areas
26 0 27 1	L.	Spec. Char. Ultim. Target group	General population
28 0 29 1	M.	Char. Instrumental Target group	Professional education personnel
30 5 31 1	N.	Topical Area Code	Cognitive or intellectual functions
32 0 33 0 34 0	O.	Subject matter Field	Not applicable
35 0 36 1	P.	Acad. Area of Investigator	Psychology
37 38 39 40	Q.	FY Allocation (thousands)	

Project 0601: Pupillometry

Principal staff: R. H. Koff

The pupillometry research project has nearly completed an extensive bibliography and classification of the literature on pupillometrics and related areas. A description and a manual of operation for the pupillometer are in the final phase of completion. Project equipment has been utilized by research staff of the Stanford Laboratory of Hyponosis Research. It is anticipated that future research using pupillometric techniques will be conducted outside the Center in the Stanford Laboratory of Hypnosis Research under the direction of Professor E. R. Hilgard.

II. PROGRESS REVIEW

A. ADMINISTRATIVE AND ORGANIZATIONAL CHANGES

The major organizational components of the Center are the Officers, the Executive Board, the Advisory Panel, and the R&D Associate staff. In general, these components continue to function as outlined in the Second Annual Report. The Advisory Panel has been selected and will hold its first session in February or March of 1969. Its members are listed below.

All of the components continue to examine and discuss the adequacy of our present organizational structure. It is felt that our new structure is working well, and no large scale changes are expected in the near future. It is anticipated that our next Quarterly Report will contain a revised and expanded set of guidelines which build on, rather than seriously modify, the current guidelines.

An important addition will be a clause which outlines a procedure for making changes in the guidelines themselves. Such a clause has been implicit in the past, but the Executive Board has concluded that a more explicit procedure for instituting organizational change would be beneficial as the Center develops its substantive program.

Also under discussion is the possibility of adding student representation to the Executive Board. The Stanford School of Education has adopted a policy under which each of the School's standing committees must include two students. Since the Center's Executive Board is one of the largest and most influential committees of the School of Education, discussions centered on the possibility of more student involvement at a high level in the Center have ensued.

Robert H. Koff, Assistant Professor of Education and an R&D Associate, has been named Director of the Stanford Teacher Education Program. It is anticipated that Professor Koff's intimate knowledge of the Center's work will enable him to continue and to increase the cooperation between this program and the Center. Professor Koff has been appointed to the Executive Board of the Center.

The possibility of making the Microteaching and Intern Data Bank project a part of Support Services is being considered. This project (combining two previously separate projects) is currently part of the Heuristic Teaching program, but its relevance to the other programs is becoming increasingly apparent. Since Professor Koff has been named Director of the Stanford Teacher Education Program, the data source for this project, it may be desirable for the project to be organizationally located under his jurisdiction rather than in the Heuristic Teaching program.

The Dean of the School of Education has appointed Robert D. Hess to act as Chairman of the Executive Board during the 1968-69 academic year. Professor Hess will serve in this capacity until the fall of 1969 when N. L. Gage will return from his sabbatical leave, at which time it is anticipated that he will resume his role as Chairman of the Executive Board.

Other new appointments to the Executive Board are Richard E. Snow, who replaces Frederick J. McDonald as Coordinator of the Heuristic Teaching program, and Richard L. Warren, who replaces G. Wesley Sowards as Coordinator of the Environment for Teaching program. Finally, Mr. Bruce Harlow, Coordinator of Publications, Dissemination, and Media, will also serve on the Executive Board.

The professional staff of the Center are listed below.

I. Officers

1. Center Director - R. N. Bush
2. Chairman of the Executive Board - R. D. Hess
3. Coordinator of Program 03 - Environment for Teaching - R. L. Warren
4. Coordinator of Program 04 - Teaching the Disadvantaged - R. W. Heath
5. Coordinator of Program 05 - Heuristic Teaching - R. E. Snow
6. Coordinator of Research Methodology Unit - J. D. Elashoff
7. Coordinator of Publications, Dissemination, and Media - B. Harlow
8. Administrative Officer - J. E. Thomas

II. Executive Board

1. R. N. Bush
2. B. Harlow
3. R. W. Heath
4. R. D. Hess, Chairman
5. R. H. Koff
6. R. E. Snow
7. J. E. Thomas, Secretary
8. R. L. Warren

III. Advisory Panel

1. James E. Allen, Commissioner of Education, State of New York
2. James W. Brown, Dean, Graduate Studies and Research, San Jose State College
3. John B. Carroll, Senior Research Psychologist, Center for Psychological Studies, Educational Testing Service
4. Francis S. Chase, Professor of Education and Dean Emeritus, Graduate School of Education, University of Chicago
5. John K. Hemphill, Director, Far West Laboratory for Educational Research and Development
6. Ernest R. Hilgard, Professor of Psychology and Education, Stanford University
7. Wilson C. Riles, Director, Office of Compensatory Education, State of California
8. Robert M. Rosenzweig, Associate Provost, Stanford University
9. R. Nevitt Sanford, Director, Institute for the Study of Human Problems, Professor of Psychology and Education, Stanford University
10. Harold T. Santee, Superintendent of Schools, Palo Alto Unified School District
11. Wilbur Schramm, Janet M. Peck Professor of International Communication, Professor of Education, Director, Institute for Communication Research, Stanford University
12. B. Othanel Smith, Chairman, Department of History and Philosophy of Education, University of Illinois
13. Neil V. Sullivan, Superintendent of Schools, Berkeley, California; after January 1, 1969, Commissioner of Education, State of Massachusetts

IV. Research and Development Associates	Discipline
C. Norman Alexander, Assistant Professor of Sociology	Sociology
J. Victor Baldridge, Assistant Professor of Education and Sociology	Sociology and Education
Robert N. Bush, Professor of Education	Education
Elizabeth G. Cohen, Assistant Professor of Education and Sociology	Education and Sociology
Sanford M. Dornbusch, Professor of Sociology	Sociology
Janet D. Elashoff, Assistant Professor of Education	Statistics and Education
N. L. Gage, Professor of Education and Psychology (on sabbatical)	Education and Psychology
Frank B. W. Hawkinshire, Assistant Professor of Education	Social Psychology
Robert W. Heath, R&D Associate, Education	Psychology
Robert D. Hess, Professor of Education and Psychology	Education and Psychology
Kenneth E. Knight, Assistant Professor of Business Administration	Social Psychology and Systems Analysis
Robert H. Koff, Assistant Professor of Education	Education and Psychology
Henry M. Levin, Assistant Professor of Education and Affiliated Faculty of the Department of Economics	Economics
John W. Meyer, Assistant Professor of Sociology	Sociology
Robert L. Politzer, Professor of Education and Romance Linguistics	Linguistics and Education
W. Richard Scott, Associate Professor of Sociology	Sociology
Fannie R. Shaftel, Professor of Education	Education
Joan E. Sieber, Assistant Professor of Education	Psychology
Richard E. Snow, Assistant Professor of Education	Psychology
Maria D. Tenezakis, R&D Associate, Education	Psychology
Carl E. Thoresen, Assistant Professor of Education	Education
Paul Wallin, Professor of Sociology	Sociology
Richard L. Warren, R&D Associate, Education	Education and Anthropology

B. PROGRAM AND PROJECT PROGRESS REVIEWS

Program 03: The Environment for Teaching

Coordinator: R. L. Warren

Project Leaders: C. N. Alexander, J. V. Baldridge, Elizabeth G. Cohen, S. M. Dornbusch, K. E. Knight, H. M. Levin, J. W. Meyer, W. R. Scott, P. Wallin, R. L. Warren

The Environment for Teaching program took its present form in the spring of 1968. As of July 1, all principal project investigators except Warren were new to the program, and with the departure of G. W. Sowards, there was a change in coordinators. New members of the program have been drawn from the Department of Sociology and the Graduate School of Business, as well as the School of Education. Consequently the emphasis to date has been on the discussion of mutual research interests and on the development of a common point of view about the plans and possibilities of the program. Substantial progress has been made in this direction. Specific research and development progress is noted in the reports on the individual projects.

Project 0302: The Organizational Context of Teaching

Principal staff: G. Wesley Sowards, Barbara Lopossa

The second phase of this project is concerned with the decision-making efficiency of elementary school teaching teams as compared to that of ad hoc groups of classroom teachers and individual teachers. Data have been gathered by the Decision Process Test developed for use with teachers and based on a similar instrument developed by Brim, et al. In addition, questionnaire data about the subjects were collected and the interaction of subjects in the group-decision condition was observed. During this quarter, the analysis of this data was initiated and is continuing. Interaction profiles have been prepared from the observation data, questionnaire data have been summarized, and work is progressing on the analysis of variables measured by the Decision Process Test. It is anticipated that this phase will be completed and a final report written by December 1 of this year.

Project 0303: Professional Socialization of the Teacher

Principal staff: Richard L. Warren

During this past quarter, work in this project has been primarily limited to data analysis. By the end of the quarter one phase of the analysis will be completed. This phase involves a study titled "Professional Socialization and Teacher Autonomy" by a former Center research assistant, Don Edgar. The study is concerned with the process by which new teachers achieve autonomy within the school organization. It is based on a theory of socialization which focuses on socialization within the school rather than within the training institution. The theory maintains that the new teacher's existing attitudes undergo many pressures once he enters the school and that these pressures relate closely to the process of teacher evaluation.

Project 0304: Attitudes of Teachers toward Their Occupation

Principal staff: Robert W. Heath

During the period July 1, 1968 to October 31, 1968 item analysis of the preliminary version of the six attitude scales was completed.

Project 0305: Case Studies of the Teacher's Role in Traditional and Innovative Elementary Schools

Principal staff: Richard L. Warren

The case study of an elementary school with a traditional structure and organization is continuing. During the summer, the focus shifted from the life and operation of the school itself to those facets of the school district and the community which most directly affect the school and its teachers. A series of interviews with a stratified random sample of parents living in the school's attendance area was initiated. Interviews are also being conducted with members of the district's school board, officers of the local teachers' organizations and with key district administrative personnel. With the new school year, the interviews are continuing. At the same time a pilot study is being developed which investigates the staff and professional relationships between elementary teachers and specialists (speech therapists, psychologists, etc.) who participate in the life of the school on a part-time basis only.

Project 0306: Organizational Change: The Study of Innovations in Educational Institutions

Principal staff: K. E. Knight, J. V. Baldridge

The project staff has met weekly during the reporting period. Four staff members are completing dissertation proposals for research to be performed in conjunction with the control research. Data from an earlier pilot study with a preliminary version of the interview schedule were coded and analyzed. A questionnaire was sent to a San Francisco Bay Area school inquiring about school facilities and innovations. The preliminary versions of most instruments have been developed.

As noted in the Project Resume, J. Victor Baldridge has planned a new study to complement the present study directed by Knight.

Project 0307: The Teacher in the Authority Structure

Principal staff: S. M. Dornbusch, W. R. Scott, Elizabeth G. Cohen,
J. W. Meyer

Beginning at the Center on July 1, the project has continued one ongoing study and begun thinking and research on several other. Weekly group sessions on this project and Project 0308 were held at the Center during July and August and are being continued at less frequent intervals. A study of the process of organizational evaluation of faculty members in Stanford's School of Humanities and Sciences has been completed and a final report is being written. General theoretical work has begun which is leading to studies of (a) the problems of teachers as professionals in bureaucratic organizations and (b) the role-orientations of elementary school teachers as resulting from their status orientations and aspirations. A theoretical report on the concept of the professions is being prepared. Specific empirical attempts have been made to construct measures of various aspects of the professionalism of teachers and of the extent to which the tasks they perform are defined as "active" or "inert."

Progress on the individual studies in this project is reported in the Project Resume.

Project 0308: The Social Context of Teacher-Student Relations

Principal staff: J. W. Meyer, P. Wallin, C. N. Alexander

Two ongoing studies have been continued and two new studies begun since the project began work at the Center on July 1. A comparison of the effects of high school social class and parental aspirations on the educational goals of tenth-grade students (Study A) has been largely completed and a final report is being prepared. Study C, on the occupational choices of college students as they are affected by characteristics of the college environment, is in the process of data analysis. A study of the perceptions of the occupational structure as affected by high school characteristics has begun, and is now in the process of sampling and instrument construction (Study B). And negotiations have been undertaken to collect, for purposes of research training, data from available studies on large numbers of students or teachers in many different school contexts (Study D).

Further information on each of these studies appears in the Project Resume.

Program 04: Teaching the Disadvantaged

Coordinator: R. W. Heath

Project Leaders: F. B. W. Hawkinshire, R. W. Heath, R. H. Koff,
R. L. Politzer

The four months since this program was initiated in July 1968 have been primarily devoted to organizing and staffing the various projects of the program. As indicated in the progress reports of the individual projects, the program has made considerable advancement toward its objectives. One research and development memorandum has been produced. The first of what we hope will be a series of audio tapes of interviews is now in production.

The program is now fully staffed and the Community-Centered Teaching Laboratory is in operation. A considerable amount of data has been generated, systematic literature searches are under way, and good working relations have been established in a minority community.

Project 0401: Educational Community Organization

Principal staff: Robert W. Heath

During the period July 1, 1968 to October 31, 1968 this project:

(1) completed its preliminary staffing;

(2) opened a neighborhood office in a black community;

(3) developed contacts and working relations with various groups and individuals; and

(4) began documentation of community-felt needs for educational change and community organization procedures that would facilitate those changes in educational systems serving the community.

On September 11, 1968 a facility at 1627 Bay Road, East Palo Alto, was opened to carry on community organization work. This facility is a store front in a shopping center in an unincorporated black community of approximately 33,000 population. The project personnel have developed contacts and working relationships with community groups (black, white, and mixed), the Stanford Law School, VISTA associates, community resource people (communication and media experts and administrative advisors), teachers (teacher's unions and teacher's district associations), local government agencies (Municipal Council)), and local school district personnel. As the staff of the Center attend school board and other meetings, they maintain logs and diaries of the organizational dynamics. These logs will be abstracted to identify principles, strategies, tactics, and techniques employed to affect changes in the local school systems. In addition, a series of tape-recorded interviews about education in the community has been completed.

Project 0402: Teacher Training: Standard English as a Second Dialect

Principal staff: Robert L. Politzer

During the period July 1, 1968 to October 31, 1968 the literature dealing with the teaching of standard English as a second dialect was reviewed. Contact was established with some of the principal workers and agencies in the field (e.g., Center of Applied Linguistics, Washington, D. C.; Professor W. Labov, Columbia University; Project Literacy, Cornell University). Since one of the current assumptions is that foreign language teaching methods should be utilized in teaching a second dialect, the differences between second dialect teaching and foreign language teaching were examined in the light of the current literature. The results of this examination will be published in a research and development memorandum. The latter will be revised in order to serve as the general introduction of the teacher training syllabus which is the main product envisaged by the project.

Project 0403: Developing Problem-Solving Skills through Students Teaching Students: Use of Small Groups

Principal staff: R. H. Koff

The research program has been successful in initiating the first phase of its planned tutorial project program. Permission to conduct research in a disadvantaged-area elementary school has been obtained from the District Superintendent. The project staff has had several meetings with members of the school faculty. Observation of the sixth and first grades is currently under way, and the research staff has scheduled regular planning meetings with the school faculty to plan and sequence learning activities for the students. It is expected that within the next few weeks sixth graders will start to receive training in the art of instructing first graders.

Project 0404: Use of Small Groups in a Changing School

Principal staff: F. B. W. Hawkinshire

The Changing School project established relationships with the target school district, working through the district Intergroup Consultant who acted as liaison person by arranging meetings with the superintendent, principal, and key counseling personnel. Permission was secured at the district and school level for the project to be operated as part of the in-service training program for the school.

Upon the opening of school this fall, participating teachers were nominated by secret ballot by the faculty. The 15 top names were selected from those nominated; to this group were added ten others selected by the administration because they "needed this kind of exposure." Each teacher was interviewed, and was asked to nominate 15 students for participation in the project. These students represented the entire spread of the student body (the top student leaders, middle-of-the-road students, and those who were in the lower third in terms of participation or grades). A pool of 25 students was selected from the 370 nominated by the teachers and invited to join the project.

The parents of the selected students were also invited to join a parent group to meet in addition to the teacher, student, and administrative groups. Two meetings have been held with each of the four groups, which are still working on diagnosing the problems they see as existing within their school.

The preliminary meetings to launch the project have resulted in the principal investigator's being asked to meet with a second school within the district to provide help in bringing order to its building. The methods being employed are not the same, but the effort is to bring about increased communication between the various elements within the school building. A series of six meetings have been arranged with this school, with two having taken place with the entire faculty and representative members of the active student group.

Project 0405: Small Group Interaction

Principal staff: F. B. W. Hawkinshire

During the reporting period much of the work on this project was carried on within the program on Heuristic Teaching. For a progress report see that section of this report.

Program 05: Heuristic Teaching

Coordinator: R. E. Snow

Project Leaders: R. H. Koff, Joan E. Sieber, C. E. Thoresen

The Heuristic Teaching program has been progressing at two levels during this past quarter. At the project level, activities of recent months are described in detail in the project sections of this report. At the program level, our accomplishments have been principally conceptual. Described in the program resume is a growing theoretical framework which has been developed in the past two months. We have been concerned with furthering the integration of projects within the program and with building closer lines of cooperation and communication among projects. Since the program coordinator (Snow) and one project leader (Koff) were new to their respective responsibilities, this quarter has served as orientation for both of these individuals.

Project 0501: Training Studies

Principal staff: R. E. Snow

Three separate studies have been conducted within the Training Studies project during the current reporting period.

The first study is a continuation of previous research on the learning of a complex teaching skill, that of higher-order questioning (see Quarterly Progress Report No. 11, pp. 3-4). The data were collected by Karen E. Claus at San Jose State College during the 1967 summer intern teacher-training program. Three major areas are being investigated: (a) aptitude-treatment interactions between trainee characteristics and effects of the training program on teaching performance; (b) improvement in skill use as measured by pre- and post-summer session performance records; and (c) sequential patterns of teacher questions and pupil responses.

The experimental data on higher-order questioning skill, which had previously been rated, were recoded to include new information from the original microteaching session transcripts on the specific ordering of teacher questions and pupil responses. The transcripts of the pre-training session (Diagnostic I) and the post-training session (Diagnostic II) were coded for sequence of teacher questions and pupil responses, and the Diagnostic I transcripts were rated for frequency of questions occurring in the eight categories of question types used in a previous study (see Quarterly Progress Report No. 11, pp. 3-4).

Reanalysis of the higher-order questioning experimental data is in progress. Measures of teacher aptitudes and characteristics are undergoing regression analysis to determine the extent to which each variable predicts questioning performance. Diagnostic II transcripts are being rated for frequency of higher-order questions occurring in the eight categories.

The second study was described in detail in the Second Annual Report, pp. 26-27. The purpose of this study was to examine the effects of three methods of training (symbolic model--written description; perceptual model--videotape presentation; and control--no specific training) upon intern teachers' specific technical skills of teaching (probing, reinforcement, silence) that had been hypothesized to promote effective and meaningful pupil-teacher interaction. Detailed analysis of the data on the technical skill of probing indicated that the assumptions critical to a repeated measures analysis of variance could not be supported. Individual comparisons using a correlated t test revealed no treatment effects. Further analyses of the data are now being considered.

A third study has recently been completed. This was a pilot study of skill development and skill interaction over a summer of microteaching, using data collected for the Intern Data Bank. This study sought to determine the extent to which intern teachers acquired three technical skills--silence, reinforcement, and probing--as a result of a six-week training program, and to explore possible intercorrelations among the learning of the three skills. In the pilot study, eight subjects were chosen randomly from among a group of 60 interns who taught a 40-minute preset lesson at the beginning and at the end of the training session. Videotapes of these lessons were rated in order to establish pre- and post-training measures of the three behaviors. Analysis of the data revealed a significant increase in the use of reinforcing and probing skills in seven of the eight subjects. The amount of teacher use of silence increased in seven subjects, and the amount of total silence in five, although these results were not statistically significant. The learning of the skill of probing was correlated with the learning of reinforcement, but neither of these skills was correlated with learning the use of silence.

Project 0502: Intern Data Bank Project

Principal staff: R. H. Koff

Three studies based on data from the Intern Data Bank are nearing completion. Two of these studies, conducted by Robert Pinney and Robert Shutes, explore the correlates of teacher effectiveness in explaining. Both studies use the same sample of 24 intern teachers; 12 judged to be the most effective in explaining and 12 judged to be the least effective on the basis of the adjusted achievement scores of their students. Pinney's study is concerned with a number of presentational variables as ascertainable from videotape recordings of the interns' behavior in two 45-minute teaching exercises. These variables include: (a) teacher-student verbal interaction patterns; (b) non-content related verbal behaviors such as verbal highlights, explaining links, repetition, teacher questions, and teacher reinforcement of student responses; and (c) vocal and visual behavior in content delivery. Shutes' study is concerned with textual (i.e., content) variables measurable in the transcriptions of the texts of the two 45-minute lessons. Four broad categories of independent variables are investigated: (a) structuring--the organization of the lesson as a whole; (b) organizational--the internal order of sections and smoothness of progression; (c) ideational--the level of abstraction and the kind of intellectual activity required of the students; and (d) semantic--the meaning of words, phrases and sentences, verbal idiosyncracies. In both studies the dependent variable, success in explaining, will be correlated with each independent variable and with combinations of these variables.

The third study, conducted by Richard Clark, will explore the relationship between two independent variables: authoritarianism, as measured by the California F Scale, and educational progressivism, as measured by Kerlinger's Educational Scale VII, and the dependent variable of teacher trainees' use of inquiry behaviors in the classroom. Inquiry behaviors are those behaviors which attempt to elicit induction, generalization, and deduction from students. This study tests three major hypotheses: (a) there will be a significant negative correlation between the Kerlinger Educational Scale VII and the California F Scale; (b) these measures will be independent predictors of the teachers' use of inquiry behavior both prior to and after the first quarter of training, and (c) the correlation between each independent variable and the dependent variable will remain significant when the other independent variable is held constant.

These three studies were completed during the current reporting period; the results will be presented in three technical reports to be published during the next fiscal year.

(Note: The first two studies listed above originated in Project 0102, Technical Skills of Teaching: Explaining, and were incorrectly listed in the Quarterly Report No. 11 as continuing in Project 0501. As is explained in the Project Resume, all the studies in the Microteaching and Intern Data Bank projects have been combined and will henceforth be reported as Project 0503.)

Project 0503: Microteaching Clinic

Principal staff: R. H. Koff

The procedures developed in past years for preparing the Secondary Teacher Education Program trainees (the "interns") were again used this year. Descriptions of the videotaping, supervisory, and technical skills procedures can be found in past reports. This report will focus on the new approach to training this past summer, which saw the training program led by three psychology professors, each with a different strategy for preparing the interns for their teaching responsibilities.

The overall goal of the summer was to make the teacher education courses and microteaching sessions as complementary as possible. Thus, each program had the responsibility for integrating psychology, secondary education, the microteaching experiences, and the curriculum and instruction courses. The three programs were led by F. J. McDonald, now Associate Dean of the School of Education at New York University; M. D. Merrill, an assistant professor and R&D Associate in 1967-68 and now at Brigham Young University; and R. H. Koff, R&D Associate at the Center and assistant professor in the School of Education.

McDonald's program emphasized the technical skills of teaching. This program was most similar to those of past summers. It assumed that there are specific teaching strategies that help students learn. During the first two weeks of the summer, interns in this program learned the techniques of reinforcement, silence, probing, and higher-order questions, all of which should be of use in reaching lesson objectives. Another underlying philosophy in this approach is that teachers should be clear as to what specific lesson goals students should reach, that these goals must be known by the students as well, and that a great deal of teaching therefore consists of careful planning. Philip Jackson has called this work done before class the "preactive part of teaching."

Merrill's program was similar to McDonald's in its heuristic approach but defined technical skills as skills of instructional interaction which are secondary in importance to the need for instructional design. Instructional design, according to Merrill, is more than specifying and embodying learning goals in lesson procedures and evaluations. It is rather a process of actual involvement with the modification of materials in order to promote desired learning outcomes. Understanding of how to interact with students pedagogically was considered not as crucial as knowing how to design and construct an environment (and especially learning materials) to facilitate learning.

In planning an ideal teacher education program, Merrill stressed three phases:

(1) providing trainees with specific social and instructional interaction skills;
(2) providing them with instructional design skills; and
(3) the "application-internship" phase, in which the trainee can apply the skills acquired in a live situation, such as the Microteaching Clinic.

The third program, guided by Koff, had three special emphases: community study, school as an operating system, and group processes.

Students in Koff's program were divided into learning teams based on responses to a questionnaire completed prior to the start of the program. Evaluation of student performance was obtained by (a) requiring students to maintain a daily journal of their experiences in the course; (b) requiring students to write a community study of the area in which they would be teaching in the fall; (c) requiring students to prepare a report that described teacher-learner interaction within the microteaching laboratory; (d) requiring students to write a complete statement of a curriculum unit they would implement in the fall; (e) pre- and post-course videotape microteaching lesson; and (f) completion of pre- and post-course questionnaire.

Products from Koff's summer course consist of 12 community-study reports, eight learning-team reports, and 40 curriculum units, in addition to the videotapes and questionnaires for the entire intern group. Data obtained during the summer are in the initial stages of analysis and a complete report describing the instructional sequences and materials is in preparation. It is expected that the evaluation and report will be completed toward the end of the fall quarter.

(Note: Future reports under Project 0503 will reflect the combination of Projects 0502 and 0503 into the new Project 0503 on Microteaching and Intern Data Bank.)

Project 0504: Uncertainty Studies

Principal staff: Joan E. Sieber

Four pilot studies have been completed by Susan Crockenberg, Patricia Engle, Carol Ann Moore, and Nancy Stein. Their respective studies concerned the effects of modeling and expectancy on task persistence; the relationship between uncertainty and ethnic and economic variables; the effects of task and self-esteem variables on post-decision uncertainty; and the effect of reinforcement for correctness on response latency. Mrs. Crockenberg's modeling procedures and Mrs. Stein's cue-attendance training were found to be effective, and with slight revisions these procedures have been employed in major experiments. Mrs. Crockenberg's experiment has been completed and is presently being analyzed. Mrs. Stein's experiment is still being conducted. Miss Engle's pilot study elucidated various methodological and sampling problems in studying the relationship between uncertainty and class variables. It will not be developed into a larger study at this time. Miss Moore's study indicated that uncertainty is less on problems having one correct answer than on problems for which there may be many correct answers. This result was hardly surprising, as many other experiments have indicated that uncertainty increases with the number of possible responses. More interesting was the finding that self-esteem concerning one's ability as a problem-solver was negatively correlated with uncertainty. Apparently persons' self-concept, rather than their assessment of their performance in a specific task, has the greater effect on their uncertainty. As a result of these findings, a larger experiment is being designed to determine whether persons can be taught to evaluate their uncertainty in relation to relevant task and performance variables, rather than in relation to their general level of self-esteem.

At the Stockholm seminar on Learning and the Educational Process, attended by Joan E. Sieber, theoretical models of decision processes under conditions of uncertainty were presented and examined by seminar participants. These included Berlyne's conflict model, Bayesian statistical models, the Brunswikian lens model, risk-taking models, and Maltzman's S-R model. The Brunswikian model in particular seemed relevant and potentially useful to the uncertainty project.

In the memory-support area, plans are now being considered by Sieber, Leon Paulson, and W. P. Gorth for developing and testing, in some Oregon schools, curricula and teaching techniques which utilize memory-support techniques. Several schools are presently being contacted and evaluated for the purpose.

Project 0505: Small Group Interaction

Principal staff: F. B. W. Hawkinshire

This progress report covers the work done by F. B. W. Hawkinshire in this project, originally identified as Social Interaction. Work done by R. H. Koff under this number will henceforth be reported under 0503, Microteaching and Intern Data Bank. Work done by F. B. W. Hawkinshire under this number will henceforth be reported under 0405, using the same title (Small Group Interaction).

The first data collection phase of this project was completed in June 1968. Since that time, the staff has devoted attention to data reduction and analysis. It is anticipated that the analysis will continue for another six weeks. The report and articles revealing the findings are in the process of being written. Plans are also being undertaken to develop research strategies for next year. Instruments are being redesigned and additional decisions are being made about the addition or elimination of specific research questions. On the basis of the data on hand, a new design is being drawn up for the second data collection phase in keeping with the first set of findings.

Project 0506: Personal Competencies

Principal staff: Carl E. Thoresen

All Stanford teaching interns were administered the Myers-Briggs Type Indicator (MBTI) in June. Three group-interpretation sessions were held to explain the results and suggest how the MBTI might indicate the types and kinds of classroom and school-related situations that could be problems. Twenty-five previous interns (1967-68) were interviewed about problems they had encountered. The chief problems were (a) inability to employ heuristic-teaching skills with students who "demanded" didactic procedures, and consequent anxieties on the part of the interns; (b) confusion about how to relate to students, i.e., remain aloof, be authoritarian, or be very friendly (narrow age differences were important in this area); (c) anxieties about how to handle "discipline," feeling that it was considered by most as more important than learning; and (d) confusion and ineptness in school-staff relationships, especially in being unable to assert themselves and being overly sensitive to criticism and disapproval.

At Stanford, the MBTI is being used along with biographical data, observations in the classroom, supervisor ratings,and self-report forms, to identify teaching interns with problems of personal competencies. The correlates of such problems as they influence what happens in the classroom are being assessed.

Approval was obtained from the Palo Alto Unified School District to conduct the project concurrently in one of the District's junior high schools. Part-time services by the resident district psychologist at that school were arranged for. Currently the school's counseling staff is being trained in techniques which will enable them to assist the school's classroom with competency problems. Furthermore, a small group of experienced teachers from Palo Alto and other districts will be involved as consultants to help identify and suggest ways in which teachers with personal problems might be approached.

Project 0602: Nonintellective Effects of Educational Technology: The Computer as an Authority Figure for Pupils

Principal staff: R. D. Hess, Maria D. Tenezakis

Work began on August 16, 1968 with a survey of the literature. The survey encompasses theory and research findings on learning principles involved in teaching programs; children's attitudes toward the human authority (particularly the teacher's); suggestibility and impulsivity in children; children's willingness and ability to question the competence of authority figures and the quality of information provided by authoritative sources; and relationships of the above characteristics of learners with antecedent variables such as age, sex, SES, I.Q. of the learners, and teaching styles of authority figures.

Project 0704: Methodology Unit

Principal staff: Janet D. Elashoff

The Unit continues to provide consultation services on research design and analysis and to handle the details of computer-based data processing for the Center. Projects given special help were Professional Socialization (Warren), Data Bank (Snow), Technical Skills of Teaching: Foreign Language (Politzer), Training Studies: Analytic Questions (Koran), Training Studies: Higher-Order Questions (Snow), Technical Skills of Teaching: Explaining (Gage), and Uncertainty Studies (Sieber). Catherine Lin, our new junior statistician, now supervises the details of data analyses handled by the Unit. Robert Proctor has completed a regression program which includes scatterplots and a test for parallelism of regression. Janet Elashoff completed a review of the robustness of covariance analysis.

Project 0102: Technical Skills of Teaching: Explaining

Principal staff: N. L. Gage

Doctoral dissertations by Robert Pinney and Robert Shutes, based on research carried out in the project, are being completed. (These studies will henceforth be reported under Project 0503, Microteaching and Intern Data Bank.) Final editing is being completed on a chapter tentatively entitled "Explorations of the Teacher's Effectiveness in Explaining," for a volume tentatively entitled "Research into Classroom Processes," to be published by the Ontario Institute for Studies in Education and also by the Teachers College Press of Columbia University. This chapter is based on four papers presented at the February 1968 meeting of the American Educational Research Association and on the ensuing discussion by John B. Carroll and Robert Glaser.

Project 0103: Technical Skills of Teaching: Foreign Language

Principal staff: R. L. Politzer

During the period July-October work continued on a technical report summarizing the project's activities and results.

Project 0105: Technical Skills of Teaching: Role-Playing

Principal staff: Fannie F. Shaftel

With the suspension of film activities by the Center, delays have been encountered in the completion of a training film on the uses of role-playing, with its accompanying user's manual. New cost estimates for completion of the film have been received and are being evaluated. Work is proceeding on a research and development memorandum summarizing the work of the project.

Project 0201: Teacher Attitudes and Their Correlates

Principal staff: N. L. Gage

A paper tentatively entitled "Pupil Perceptions of Teachers: A Factor Analysis of 'About My Teacher'" by Walter W. Zwirner, William R. Beck, Lee J. Cronbach, and N. L. Gage is awaiting final revision.

Project 0202: Teachers' and Pupils' Cognitive Preferences in Mathematics

Principal staff: R. W. Heath

This project has been suspended pending the completion of the films developed for presenting verbal, symbolic, and graphic modes of expression. When the films are completed, it is hoped that a revised form of the Cognitive Preference Inventory can be validated through the cooperation of Mr. Kenneth Travers, now at the University of Illinois, and that the data can be analyzed with the cooperation of Mr. Leonard Cahen, now at the Educational Testing Service.

Project 0301: The Teacher in 1980

Principal staff: R. N. Bush

A research and development memorandum, to serve as the final report on this project, is being developed.

III. OUTPUT REVIEW

A. PUBLICATION REGISTER AND RESUME

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FY 1969

Date Prepared: 10/28/68

PUBLICATION REGISTER

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Code Number	Title	Investigator(s)
01	The Behavioral Domain	
	Pre-theoretical Considerations of Uncertainty: An Aspect of Classroom Communication. Res. Memo. No. 19, January 1968.	R. H. Koff, R. L. Warren
	Personality Correlates of Sociometric Status. Res. Memo. No. 21, May 1968.	R. H. Koff, T. H. Hawkes
	Systematic Changes in Adult Word-Association Norms 1910-1967: Implications for the Language of the Classroom. Res. Memo. No. 28, April 1968.	R. H. Koff, D. H. Feldman
0101	Technical Skills of Teaching: General	
	Applying the Language of Behavioral Models to Teaching Acts. Res. Memo. No. 3, March 1967.	F. J. McDonald
	Brunswikian Approaches to Research on Teaching. Res. Memo. No. 4, March 1967.	R. E. Snow
	Response Complexity and Experimental Design. Res. Memo. No. 5, March 1967.	R. E. Snow
	Toward a Model of Teacher-Learner Interaction. Res. Memo. No. 18, January 1968.	R. E. Snow
	Training Teachers as a Research Tool. Res. Memo. No. 24, February 1968.	F. J. McDonald
	The Specification of Film-Attributes for Psychological and Educational Research Processes. Res. Memo. 27, March 1968.	G. Salomon, R. E. Snow
	Training Effects of Feedback and Modeling Procedures on Teaching Performance. Tech. Rept. No. 3, 1967.	F. J. McDonald, D. W. Allen

0110	An Overview of Research on Teaching Methods	
	Three Pressing Concerns of Educational Research. Res. Memo. No. 1, March 1967.	N. L. Gage
	An Analytical Approach to Research on Instructional Methods. Res. Memo. No. 2. March 1967.	N. L. Gage
	Theoretical Formulations for Research on Teaching. Res. Memo. No. 8, July 1967.	N. L. Gage, W. R. Unruh
	Teaching Methods. Res. Memo. No. 33, July 1968.	N. L. Gage
0111	Relationship of Teaching Behaviors to Students' Ability to Use Information	
	Overcoming Secondary Ignorance: Learning to be Uncertain. Res. Memo. No. 17, January 1968.	Joan E. Sieber
0112	Teacher Behavior in Relation to Student Anxiety	
	The Relationship Between Test Anxiety and Children's Need for Memory Support in Problem-Solving. Res. Memo. No. 11, September 1967.	Joan E. Sieber, L. I. Kameya
02	Personological Domain--Teacher Traits and Characteristics	
	The Definition of a Cognitive Control Principle: A Case of Diminishing Returns. Res. Memo. No. 16, December 1967.	R. H. Koff
	Preferences of Teacher Trainees for Teaching Situations: The Reaction to Teaching Situations Test. Res. Memo. No. 22, May 1968.	R. H. Koff
0201	Teacher Attitudes and Their Correlates	
	Techniques for Estimating the Source and Direction of Causal Influence in Panel Data. Res. Memo. No. 9, August 1967.	A. H. Yee, N. L. Gage
0202	Teachers' and Pupils' Cognitive Preferences in Mathematics	
	Preferences for Modes of Expression in Mathematics. Res. Memo. No. 7, May 1967.	K. S. Travers, R. W. Heath, L. S. Cahen

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0102	Technical Skills of Teaching: Explaining	
	The Teacher's Effectiveness in Explaining: Evidence on its Generality and Correlation with Students' Ratings. Res. Memo. No. 10, May 1968 (Rev. ed.).	Maria R. Belgard, B. Rosenshine, N. L. Gage
	Validation of a Criterion of Lecture Effectiveness. Res. Memo. No. 26, March 1968.	W. P. Gorth, D. W. Allen, L. W. Popejoy, T. W. Stroud
0103	Technical Skills of Teaching: Foreign Languages	
	An Exploratory Study of the Relation of Teacher Competence and Performance to Pupil Attitudes Toward Foreign Language Learning. Res. Memo. No. 13, October 1967.	R. L. Politzer
	Practice-Centered Teacher Training: French. Tech. Rept. No. 1, 1966.	R. L. Politzer
	Performance Criteria for the Foreign Language Teacher. Tech. Rept. No. 1A, 1966.	R. L. Politzer
	Practice-Centered Teacher Training: Spanish. Tech. Rept. No. 2, 1967.	R. L. Politzer, Diana E. Bartley
0106	Teaching in Small Groups	
	Dynamics of Task and Process: The Classroom as Social Organism. Res. Memo. No. 15, November 1967.	R. H. Koff
0107	Teaching for Divergent Thinking	
	The Study of Development of Creativity: Research Problems in Parental Antecedents. Res. Memo. No. 29, April 1968.	Pauline S. Sears
	Changes in Young Children's Behavior After a Year of Computer-Assisted Instruction: An Exploratory Study. Res. Memo. No. 31. May 1968.	Pauline S. Sears, D. H. Feldman
0108	A Taxonomy of Teaching Behaviors	
	A Taxonomy of Teaching Behaviors: Progress Report. R&D Memo. No. 36, September 1968.	D. P. Baral, R. E. Snow, D. W. Allen

03	Institutional Domain	
	A Differentiated Teaching Staff. Res. Memo. No. 6, March 1967.	D. W. Allen
0401	Educational Community Organization	
	Interviews with Four Black Parents. R&D Memo. No. 37, September 1968.	L. Roy, R. W. Heath
0501	Training Studies	
	A Model of Mathemagenic Behavior as Intervening Variables in Classroom Communication. Res. Memo. No. 30, April 1968.	F. J. McDonald
	A Study of a Fixed Sequence of Skill and Concept Acquisition Requisite to Performance of a Common School Task: Map Drawing. R&D Memo. No. 38, September 1968.	D. H. Feldman
0503	Microteaching and Intern Data Bank	
	Intercorrelations Among Three Methods of Estimating Student Attention. R&D Memo. No. 39, September 1968.	M. Taylor
0504	Uncertainty Studies	
	Individual Differences in Decision Making. Res. Memo. No. 23, February 1968.	Joan E. Sieber
	A Paradigm for Experimental Modification of the Effects of Test Anxiety on Cognitive Processes. Res. Memo. No. 25, May 1968.	Joan E. Sieber
0601	Pupillometry	
	Sociometric Choice: A Study of Pupillary Response. Res. Memo. No. 20, February 1968.	R. H. Koff, T. H. Hawkes
0704	Methodology Unit	
	Missing Data in Analysis of Variance. Res. Memo. No. 14, November 1967.	Janet D. Elashoff, A. Abrams
	Analysis of Covariance. Res. Memo. No. 34, August 1968.	Janet D. Elashoff

General

New Directions for Research and Development in Teacher Education. Res. Memo. No. 32, May 1968.	R. N. Bush
Social Approval and Achievement Striving in the Kindergarten. Res. Memo. No. 35, June 1968.	G. Reimanis

PUBLICATION RESUMES

Note: The Publication Resumes on the following sheets cover the publications listed below.

Research and Development Memoranda Nos. 3, 4, 6, 7, 13, 14, 17, 18, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 34, 35, 36, 37, 38, 39.

Technical Report No. 2.

To the best of our knowledge, ERIC Resumes were previously submitted for the publications not listed above. If any such resumes do not appear in the files of the Research and Development Centers Branch, we will be happy to supply new Publication Resumes.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 3. Project: 0101

1. F. J. McDonald, Applying the Language of Behavioral Models to Teaching Act, March 1967.

2. Purpose: To present a method for developing a language to describe the phenomena of instruction. A behavioral model was chosen in order to generalize the critical language beyond teacher-student interaction to such interactions as those of parent-child or psychotherapy.

3. Method: A theoretical paper.

4. Not applicable.

5. For the purpose of analyzing classroom behavior, the following models are useful: (a) Skinnerian-type model of instrumental conditioning; (b) A Neal Miller "drive-cue-response-reinforcement model;" and (c) a Bandura social-learning model. The application of each of these models to the analysis of teacher-student interaction and behavioral change is discussed. Two problems in using behavioral models are pointed out: (a) the extension of the model to a new set of phenomena (e.g., how to get reinforcement contingencies into the situation), and (b) communication with investigators not using these models (which may be accomplished by demonstrating that the model has made a significant contribution to our understanding of a particular phenomenon). The use of videotape to reproduce the teacher's behavior to allow for reinforcement and modeling is one method for overcoming the former problem. The latter problem can be overcome in three steps: (a) describe what we are doing when we educate (it is submitted that the essential phenomenon of education is the acquisition of formal symbolic systems for the analysis and synthesis of experience); (b) develop a theoretical (eclectic) approach which can translate the classroom behavior into a critical language of behavioral models; and (c) apply this behavioral model to the specific phenomena for which they have been developed as a proof in principle that the formal language for the analysis of behavioral events is readily applicable to classroom behavior. It is concluded that: (a) behavioral models can serve to analyze complex phenomena which bear on the analysis of the acquisition of symbolic systems; (b) creating models of teaching behavior, especially with videotape, is a powerful way of describing behavior; and (c) behavioral models will require the investigator to look at specific teacher behavior, pupil behavior, and antecedent-consequent relations.

6. The advantages of using behavioral models are: (a) they are relatively simple; (b) they require the fewest number of assumptions; and (c) there is a wealth of behavior analyzed already in these terms.

7. This paper is of interest to teachers, teacher trainers, and researchers in teaching.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 4. Project: 0101

1. Richard E. Snow, Brunswikian Approaches to Research on Teaching, March 1967.

2. Purpose: To review the usefulness of Brunswik's theoretical position as a paradigm for research on teaching.

3. A theoretical paper.

4. Not applicable.

5. A review of Brunswik's theoretical position, called Probabilistic Functionalism, suggests a paradigm for research on teaching that incorporates the main features of models previously available while providing additional features deemed important. It emphasizes (a) the probabilistic, vicarious nature of classroom behavior; (b) the close relation of classroom behavior to behavior in general; (c) the need for ideographic, developmental conceptions of the single classroom; and (d) the need for multivariate representation and analysis in research on teaching. Facet design and analysis is also suggested for use in taxonomic work on classroom variables.

6. Of value in further theoretical and research effort relevant to understanding of teaching learning processes.

7. Those interested in theory and research on teaching.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 6. Program: 03

1. Dwight W. Allen, A Differentiated Teaching Staff, March 1967.
2. Purpose: To provide a model for utilization of professional staff members in today's schools.
3. Methodology: Theoretical and policy statement.
4. Not applicable.
5. Emphasis should be on the teacher as a professional, with various kinds of technical assistants to help the teacher with his professional responsibilities. To accomplish this, four categories of teachers are identified: Associate Teacher, Staff Teacher, Senior Teacher, and Professor. Duties and responsibilities differ for each category. The first two levels (Associate and Staff) are tenured positions, while the other two (Senior and Professor) are contract positions, although they may retain tenure at level two (Staff). Advantages of differentiation include: (a) elimination of automatic salary increase and/or promotion regardless of competence; (b) identification of specific responsibilities at each level; (c) encouragement for younger, talented staff members; (d) effective utilization of persons who do not wish to accept full professional responsibility; (e) elimination of labor-management connotations in staff negotiations; (f) facilitation of innovation; (g) consideration of more alternatives in staff training and retraining; and (h) provisions for constructive utilization of individual talents. Difficulties include: (a) identifying staff responsibilities; (b) establishment of working relationships among staff members; (c) modification of the total school program; (d) lack of precendents for employing such systems; (e) lack of concepts for staff training; (f) rejection of differential teaching ranks by current staff members who might be threatened by specific criteria of performance; and (g) the need for overcompensation in lower staff ranks during a period of transition.
6. Usefulness: As indicated under "advantages" above.
7. Target groups: Teachers, administrators, schools of education.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 7. Project: 0202

1. Kenneth S. Travers, Robert W. Heath, and Leonard S. Cahen, Preferences for Modes of Expression in Mathematics, May 1967.

2. Purpose: To develop a measure of cognitive style for both students and teachers in mathematics and to study the relationship between these.

3. Method: A trial form of a Cognitive Preference Test on Mathematics was pretested on 115 seventh-grade students. The data from this test administration were used for item analysis and reliability estimation. Scores on this test were related to student performance on the Iowa Test of Basic Skills.

4. 115 seventh-grade students (69 male, 46 female) from a junior high school in Fremont, California.

5. Major findings:

   1. The 30-item test can reasonably be administered in a normal classroom period.

   2. The items function as intended and tend to discriminate.

   3. A useful balance among preference scores is produced by the test.

   4. There appears to be a positive and statistically significant relation between preference for symbolic mode of expression and performance on the achievement test.

6. The findings suggest that measurement of cognitive preferences in mathematics is possible, that such performances are related to achievement, and that this relationship has implications for instructional processes.

7. Target groups: Educational researchers, mathematics educators, and educational psychologists.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 13. Project: 0103

1. Robert L. Politzer, An Exploratory Study of the Relations of Teacher Competence and Performance to Pupil Attitudes Toward Foreign Language Learning, October 1967.

2. Purpose: To determine the relation between changes in attitude toward foreign language on the part of the pupil (measured by the Mary DuFort attitude scale) and a group of variables concerning the teacher, namely performance in the MLA-ETS tests (listening, speaking, reading, writing, applied linguistics, civilization and culture, and professional preparation) and appraisals of teaching performance by supervisors.

3. Method: All participating teachers took the battery of MLA-ETS Proficiency Tests during the summer of 1966. At the end of the school year, the teachers were rated by their Stanford and resident supervisors, using the Performance Criteria for Foreign Language Teachers (Stanford Center for Research and Development in Teaching Technical Report 1-A 1967). At the same time the students were asked to indicate their attitude toward foreign language study, using the Mary DuFort Attitude Scale.

4. The sample of teachers utilized in the study were 16 intern teachers of the Stanford teacher-training class of 1966-67. The findings were based on intercorrelation matrices established between the variables.

5. The results of the study showed that improvement in pupils' attitudes toward languages tended to take place in classes of teachers with high speaking proficiency in the foreign language. On the other hand, teacher performance in applied linguistics and appraisal of teaching performance in applied linguistics and appraisal of teaching performance by the supervisor tended to correlate negatively with gains in pupil attitude scores.

6. It is suggested that teaching methods and teacher behaviors often highly valued by the audio-lingual methods and foreign language supervisors be reexamined from the point of view of their effect on student motivation.

7. The results of this investigation should be of interest to language teachers in general, but particularly to supervisors or specialists with the training for foreign language teachers.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 14. Project: 0704.

1. Janet Dixon Elashoff and Alan Abrahms, Missing Data in Analysis of Variance, November 1967.

2. Purpose: The memorandum provides a brief review of several statistical approaches to analysis of variance problems with unequal cell sizes.

3. Not applicable.

4. Not applicable.

5. The bulk of the memorandum describes how to read and interpret the output of BMD 05V, a computer program which provides the least squares solution for the analysis of variance with unequal cell sizes.

6-7. Useful to all groups using statistical analysis in educational research.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 17. Project: 0111

1. Joan E. Sieber, Overcoming Secondary Ignorance: Learning When to be Uncertain, January 1968.

2. Purpose: To introduce the concept of warranted uncertainty, present evidence that warranted uncertainty increases knowledge acquisition, curiosity, and productive thinking, and to show ways of increasing warranted uncertainty in elementary school children.

3-6. This is not a research report; its objective is to disseminate information concerning methods of increasing uncertainty. These methods were developed in prior research.

7. Target groups: Teachers, educational psychologists.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 18. Project: 0101

1. Richard E. Snow, Toward a Model of Teacher-Learner Interaction, January 1968.

2. Purpose: To pursue further the development of a paradigm for research on teaching based on Brunswikian and information processing approaches.

3. A theoretical paper.

4. Not applicable.

5. Characteristics of an information-processing model of two-person communicative interaction are considered. Of primary concern are the internal cognitive events involved in teaching and learning. Formulations by Rothkopf and Fitts as well as earlier ideas from Brunswik and Guttman are combined to produce a preliminary model of teacher-learner interaction. General organizing dimensions for a taxonomy of teaching and learning behaviors are suggested and data sources relevant to the model are discussed. The results of two empirical studies serve as examples of aspects of the model, showing how it may be useful in educational research.

6. Of value in further theoretical and research effort relevant to understanding of teaching learning processes.

7. Those interested in theory and research on teaching.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 22. Program: 02

1. Robert H. Koff, Preferences of Teacher Trainees for Teaching Situations: The Reaction to Teaching Situations Test, May 1968.

2. Purpose: Educational research has always been concerned with personal qualities of teachers, but despite the importance of this area little is known about the nature and measurement of teacher personality, or about the relation between teacher personality and teaching effectiveness. The purpose of the present study is to assess teacher preferences for teaching situations and to determine the extent of preference change after an intensive eight-week training program.

3. Stimulus materials were line drawings showing various face-to-face teacher-student interactions and classroom furniture arrangements, ranging from small intimate tutorial situations to large impersonal lectures. Utilizing a pre- and posttreatment design, subjects were presented the stimulus materials in a paired comparison format.

4. 152 Master of Arts in Education students.

5. There were no significant ($p < .001$) changes in expressed situational preferences from pre- to posttreatment; the study found that, on the average, 83.19% of the Ss indicated a strong preference for teaching in small groups. Results are discussed in terms of identifying the technical skills of teaching associated with stated situational preference and establishing personality correlates of teacher preferences for teaching situations.

6-7. Useful to teachers, teacher trainers, educational psychologists.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 23. Project: 0504

1. Joan E. Sieber, Individual Differences in Decision Making, February 1968.

2. Purpose: This is a draft of a chapter from the forthcoming book, Uncertainty, Information Search, and Choice Behaviors, by John T. Lanzetta, James M. Driscoll, and Joan E. Sieber. It summarizes a series of experiments concerning individual differences in decision making conducted by Sieber in collaboration with Lanzetta and Driscoll and explores a theoretical framework for explaining these differences. This chapter focuses on the role which response uncertainty plays as a mediator of information acquisition and organization.

3. Methods included laboratory experiments, interviews, and correlational studies.

4. Characteristics of sample: College students.

5-6. Major findings and usefulness: Persons appear to vary widely with respect to the amount of uncertainty which they perceive to inhere in situations and the amount of uncertainty with which they are comfortable. Some means of training persons to induce uncertainty were found to be successful in increasing information acquisition and producing more thoroughly considered decisions. These training methods and their relation to modes of information use are pertinent to the teaching of reflective thinking and inquiry. Specific applications to teaching will be discussed in a forthcoming paper.

7. Target groups: Researchers in psychology and educational psychology.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 24. Project: 0101

1. F. J. McDonald, Training Teachers as a Research Tool, February 1968.

2. Purpose: Proposal and rationale for participation by psychologists in all aspects of teacher-training programs as a laboratory for testing how psychological ideas are translated into teaching actions.

3. Methodology: Expository statement of position and rationale.

4. Characteristics of sample: Not applicable.

5-6. Findings: The perennial question of "How do teachers learn to apply psychology to teaching?" has not been answered. Teachers who criticize psychology courses as irrelevant for teaching have been unable to state what is practical. Psychologists have not been able to resolve the problem of the relevance of psychology to teaching. Part of the criticism of teachers stems from attitudes toward teaching conveyed by psychologists, most of whom recoil at any suggestion that they should specify instructional procedures. The writer's position is that understanding how people learn to think psychologically is and should be one of the major tasks of a psychologist; that this task assumes even greater importance when the people are teachers whose work has numerous and significant psychological components; and that research on this problem has both great theoretical and practical value. Teaching behavior appears to be made up of complex sets of skills embedded in equally complex sets of decisions; the analysis of what these skills are and how they relate to learning is itself a challenging problem. Such questions as the verbal discourse of teachers, emotive characteristics of teacher-student interactions, factors involved in choosing teaching as a profession, and how complex teaching strategies are conceived and carried out are illustrative of the importance of psychological studies for teaching. Another type of research is that of development of skills of teaching by analysis, and then training for their acquisition. Benefits would include directly attacking diverse problems such as how people learn complex skills and make complex decisions while studying both the utility of psychology when applied and how people learn to apply it.

7. Target Groups: Psychologists, teacher trainers, teachers.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 25. Project: 0504

1. Joan E. Sieber, A Paradigm for Experimental Modification of the Effects of Test Anxiety on Cognitive Processes, May 1968.

2. Purpose: To show that applied research aimed at reducing the undesirable effects of test anxiety on intellectual performance cannot be carried out using existing research paradigms, and to propose a paradigm which would serve such an aim.

3. Method: The paradigm and the experiment discussed as an exemplar involve experimental research in either a classroom or laboratory setting.

4. Sample: School children.

5-6. Major findings and usefulness: It is widely recognized that test anxiety can have both interfering and facilitating effects on cognitive processes. However, the research from which this conclusion is drawn typically has not indicated which cognitive processes are affected or how they are affected. As a result, our present knowledge is too oversimplified to apply to practical problems; it fails to suggest research hypotheses concerning ways of overcoming the interfering effects of anxiety and taking advantage of its facilitating effects. In this paper, a paradigm is presented for studying how anxiety disrupts or facilitates intellectual activity, and how learning environments can be modified to eliminate its disruptive effects while utilizing its facilitating effects. Further, this paradigm provides a basis for constructing miniature theories of anxiety in relation to cognitive processes.

7. Target groups: Educational psychologists and researchers.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 27. Project: 0101

1. Richard E. Snow and Gavriel Salomon, The Specification of Film-Attributes for Psychological and Educational Research Processes, March 1968.

2. To clarify theoretical constructs used in studying the psychological effects of instructional media.

3. A theoretical paper.

4. Not applicable.

5. The paper suggests methodology that seeks interaction effects between media attributes, learner traits, and learning objectives, rather than main effects, and represents media attributes in psychologically manageable terms. A discussion of both psycholinguistic and information-theory approaches to the description of media attributes is provided.

6. Of value in further theoretical and research effort relevant to understanding of instructional media.

7. Those interested in theory and research on instructional media.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 28. Program: 01

1. R. H. Koff and D. H. Feldman, Systematic Changes in Adult Word-Association Norms 1910-1967: Implications for the Language of the Classroom, April 1968.

Recent research has shown that the language that teachers use in the classroom is related to a variety of pupil performance characteristics. The purpose of the present study is to examine word associations of teacher trainees in order to determine their degree of response homogeneity. Word associations obtained from a group of 185 teacher trainees in response to a standardized list of 51 stimulus words (Kent and Rosanoff, 1910) were compared with several adult normative collections. The results showed that associations of teacher trainees confirm the trend toward increased associative response homogeneity reported by Russell and Jenkins (1960). Comparisons between college undergraduate majors in education and graduate students (candidates for the Master of Arts in Teaching) showed that undergraduate Ss exhibited significantly ($p < .05$) more response homogeneity than graduate Ss. Results are discussed in terms of the impact that response homogeneity may have on teacher language and its effects on student conforming behavior in the classroom.

Target Groups: Teachers, teacher trainers, educational psychologists.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 29. Project: 0107

1. Pauline S. Sears, The Study of Development of Creativity: Research Problems in Parental Antecedents, April 1968.

2. Purpose: To review knowledge to date on parental antecedents of "creativity" or divergent thinking in children, and report discussion of this material by participants at the National Invitational Research Conference on Child Rearing Practices for Developing Creativity, St. Paul, Minnesota, 1967.

3. Method: Literature survey with commentary.

4. Not applicable.

5. Findings: Methods of establishing criterion measures for assessment of "creativity" consist, at the present time, of the following: (a) judgments by peers or experts; the judgments sometimes made on general behavior, sometimes on a production of the subject; (b) test procedures purporting to measure creativity; and (c) tests for personality characteristics thought necessary to creativity. Both the latter types of tests are shaky in terms of validity criteria; the difficulty lies partly in the problem of whether "creativity" is defined in terms of a creative product, or in a process of living and coping adaptively. Part of the difficulty is ascribed to the definition of either product or process in young children.

   Available methods for assessing parental behaviors in the child-rearing process were also reviewed. Problems here include the fact that naturalistic as compared to experimental research is commonly and probably necessarily employed. This means that the direction of influence--parent to child or child to parent--is generally unclear. Interaction situations may standardize to a certain extent the natural situation, but precise definition of the causal effect is still a problem.

   Such direct research as we have relating parental practices in child-rearing suggests that the following parent variables appear with regularity as associated with child divergent thinking: (a) support, satisfaction with self and with child; (b) low degree of punishment; (c) low pressure for conformity; (d) lack of intrusiveness. It is likely that these are necessary but not sufficient conditions for the development of true creativity; new research is needed to ascertain whether prediction is not improved by investigating the modeling influence provided by creative interests of the parents themselves.

   In connection with the variable warmth and nurturance, the results are not clear at this time; it may be that a high degree of nurturance, especially for girls, interferes with the development of confidence in the self as an independent thinker. The influence of mother behavior on boys and father behavior on girls appears frequently in the research.

6. Useful to target groups identified below.

7. Target groups: Researchers in child development; those interested in creativity; teachers and teacher trainers.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 30. Project 0501

1. F. J. McDonald, A Model of Mathemagenic Behaviors as Intervening Variables in Classroom Communication, April 1968.

The purpose of this paper is to present a model of mathemagenic behaviors as intervening variables in classroom communication. Mathemagenic behaviors are defined as those that produce learning. This model can be characterized by (a) teacher verbal behavior increasing the probability of eliciting a mathemagenic behavior, and (b) the relation of mathemagenic behavior to student performance. Teacher verbal behavior may be quantified by applying information theory concepts of originality, redundancy, and complexity. Information communicated in the teacher's verbal behavior is described as a set of linear or sequential utterances of differing degrees of probability. This behavior is of three kinds: (a) semantic; (b) syntactic (tacts); and (c) mands. The student attends to, decodes, sorts, evaluates, formulates, and responds to the teacher's verbal behavior. Mands serve to elicit student mathemagenic responses by bringing these responses under stimulus control. For example, if the teacher calls for enumerating responses, then the accuracy of a student's enumerating responses will increase. In order to explain how mathemagenic behavior controls student behavior, it is hypothesized that the pupil's understanding of principles is a direct function of the number of translation and comparison responses he makes. Empirical evidence is cited to support the conceptual model. Finally, it is demonstrated that information theory used to quantify teacher verbal behavior can be reduced from originality, redundancy, and complexity to an analysis of the mand-content relations to learning. It is concluded that, by using this behavioral and mathematical model, a research strategy can be evolved. Ultimately mand-content relations will be specified which will give specific categories of pupil change and change in conceptual, attitudinal, or skill learning.

This paper has direct relevance for researchers in teaching, teachers, and teacher trainers.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 31. Project: 0107

1. Pauline S. Sears and David H. Feldman, Changes in Young Children's Behavior After a Year of Computer Assisted Instruction: An Exploratory Study, May 1968.

The present study aims to investigate effects of a partial treatment of computer assisted instruction on the classroom behavior of first grade children by comparing them with a group who received normal teacher-led instruction. A Behavior Survey Instrument yielded 18 composite scores (9 categories of behavior at two points in time, Fall and Spring). These 18 variables were subjected to a factor analysis to test the hypothesis that the behaviors would yield two principal factors, an Academic and a Social behavior cluster. Four independent factors (Academic and Social behavior clusters at each point in time) were defined. The subsequent data analysis used scores on the four factors as dependent, independent and correlational variables. Despite independence of the four factors for the whole sample of children (N=72), subgroup analyses revealed systematic differences. (a) It was found that CAI children were less stable over time in Academic behavior than non-CAI children, while non-CAI children were slightly less stable than CAI children in Social behavior. (b) CAI children exhibited a greater amount of Social behavior during the Fall sampling than non-CAI children, while the opposite was true in the spring. There were no significant differences in Academic behavior, but non-CAI children showed a slight decrease between the Fall and Spring behavior samples. (c) Fall Social behavior was a reasonably good predictor of the progress a child would make in the CAI Reading curriculum for the CAI Reading group. This was not as true for the Math CAI children in Math. (d) A significant correlation between Academic behavior and achievement in the non-CAI subject was found; the correlation remained significant after IQ was partialled out. (e) For Math CAI children, Academic behavior (Spring) was strongly related to IQ ($.71, <.01$). Positive correlations between behavior and achievement were diminished to nonsignificance when the correlation between IQ and Academic behavior was partialled out. These findings were interpreted to suggest a possible reduction in the expected positive relations among academic behavior, IQ and achievement in the curriculum in which a child received CAI instruction. The study is recommended to those interested in the nonachievement effects of CAI.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 32.

1. Robert N. Bush, New Directions for Research and Development in Teacher Education, May 1968.

The purpose of this memorandum was to contribute to the thinking of a conference of educational leaders held at the University of Texas R&D Center on Teacher Education on October 24-26, 1967. The results of this conference were to be published and distributed in some form by the Texas R&D Center. The exact character of the sample to whom the conference results were sent is not fully known to me but can be determined from the report of the Texas R&D Center. The conclusions of the memorandum are as follows:

A needed shift in emphasis upon research and development in teacher education should proceed along the following lines. First, we must make a substantial effort to "uncourse" the professional training component. Much of it can now be programmed. We should rely extensively on performance criteria through which students in training can be observed to find out when they have developed a competence. We need to spend major time in developing clinical exercises and good teacher training materials which are now almost totally nonexistent. Training programs are not likely to change until such new materials are produced. These will consist not of new textbooks on educational psychology and general methodology, but rather of packages that look quite different from those we now have. They may contain specific behavioral definitions of teaching, videotape and film models of both positive and negative instances, and packages of inservice and preservice courses with evaluative forms and specific instructions on how to use them, all coordinated. The Far West Laboratory is beginning to work in cooperation with the Stanford R&D Center to develop some packages. The R&D Center at Pittsburgh with the regional laboratory in Philadelphia is also beginning to develop such materials.

There is also a need to saturate new training programs with supervision, both from the universities and from the schools. This will require better trained supervisors. This means, in turn, the need for greatly altered conditions in the schools during the first few years of teaching. A pattern of a year of internship and two to four years of externship, in which the beginner is learning to teach, will require that conditions be greatly altered during these first few years in the school. This requires the closest possible connection between teacher training in the universities and colleges and the conditions surrounding the new teacher.

We have much experience and some emerging ideas, practices, and materials which will enable us to carry forward this developmental work. Since this extensive developmental work will present basic issues and problems, fundamental research should not be neglected. But the major emphasis in teacher education in the next decade probably ought to be upon development, which has received very little attention.

With powerful new programs of teacher education available, the critical question is: With whom shall they be used? They should be used for those who are committed to teaching; we should not spend abnormal amounts of time, training, and money on those who are merely seeking a cheap insurance policy. Therefore, the major arena for significant research and development in teacher education will be the first few or formative years in teaching. The last two years in training and the first three or four on the job need to be looked at as a whole. The old distinction between pre- and in-service education will need to be erased. The needed reform in teacher education thus is dependent upon a needed reform in the schools and upon the way in which teachers who are going into the profession are treated during their first few years in the school. Here, it seems to me, the spotlight of attention should be focused for the next decade.

The material contained in this memorandum should be of interest to those who are developing programs of teacher education and who are in the process of selecting issues for research and development in the field.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Technical Report No. 34. Project: 0704

1. Janet D. Elashoff, Analysis of Covariance, August 1968

This paper is an attempt to describe what covariance analysis does and doesn't do and to point out the advantages and limitations of the technique. The paper contains an introduction to the model and computations of analysis of covariance and a comparison of analysis of covariance with analysis of variance. The major part of the paper contains a detailed discussion of the assumptions about the data which must be satisfied if covariance is to be a valid technique, a description of the effects on the results of the covariance procedure if an assumption is not satisfied, and suggestions for checking the assumptions. In addition, there are brief comparisons of covariance adjustments with between-group regression adjustment and of analysis of covariance with matching or blocking.

The paper should be useful to educational researchers using covariance analysis in their research.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 35. Project: Nonprogrammatic Research

Gunars Reimanis, Social Approval and Achievement Striving in the Kindergarten, June 1968.

The research in the present study is concerned with the question of how children develop achievement striving behavior and feelings of internal control over reinforcement for achievement. Two hypotheses were tested: (a) for kindergarteners who possess a feeling of internal reinforcement control with respect to achievement behavior and social approval, changes in achievement striving will be positively related to changes in the ratio of teachers' approval over disapproval for achievement behavior; and (b) for children who have not developed an adequate feeling of internal reinforcement control with respect to achievement behavior and social approval, no consistent relationship between the independent (approval/disapproval ratio) and dependent (achievement striving) variables will be found. Forty-five boys in four kindergarten classes were observed over a four-week period. Data on achievement striving were collected in a way similar to that used by Crandall and associates (Rabson, 1966); i.e., 20 second samples of behavior were observed. Results were as follows: the first hypothesis was supported by a correlation of .52 ($p < .005$) between the approval/disapproval ratio and achievement striving behavior. The second hypothesis received some support; a correlation of -.59 ($p < .05$, $w=12$) between the independent and dependent variables was found. However, the prediction that low IRC children would be lower on achievement striving than high IRC children was not supported. Results are discussed in terms of existing theories of achievement motivation. It is concluded that kindergarteners' achievement striving could be increased by providing opportunities for successful and important achievement efforts and accompanying these with social approval.

Target groups: Researchers in child development, teachers, teacher trainers.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research and Development Memorandum No. 36. Project: 0108

1. David P. Baral, Richard E. Snow, Dwight W. Allen, A Taxonomy of Teaching Behaviors: Progress Report, September 1968.

2. The overall purpose of the taxonomy project is to design an instrument for the description of classroom behavior which is much more flexible and comprehensive than previous instruments. This instrument must serve the needs of a variety of research projects and teacher evaluation programs while permitting coordination of data resulting from specific uses of the instrument.

3. During the past two years, the taxonomy project has been concerned with four major areas: (a) the elaboration of a rationale to guide research and development; (b) the generation of a comprehensive pool of items to serve as the basis of a descriptive behavioral system and the revision and editing of these items; (c) the investigation of alternative organizing structures for the pool of items; and (d) the development of a computerized system to facilitate the use of the item pool.

4. Not applicable.

5-6. In its present state of development, the item pool contains approximately 1,200 statements which are descriptive of teacher classroom behavior at varying levels of abstraction and detail. It has been compiled from many different sources, and its development has not been guided by commitment to any existing category system or theoretical orientation. Thus, it represents a kind of rough dictionary of classroom variables. The computerized system provides a convenient method of storing and working with the item pool and includes a rudimentary processing component which can be used to print selected portions of the item pool and to prepare rating forms for use in classroom observation.

The present report summarizes the work of the taxonomy project over the past two years. It presents a rationale for the design of the observation system, reviews the history of its development, and describes its current status. The report concludes with an analysis of several basic issues relating to the development of the taxonomy and a number of recommendations for future refinement and extension of the observation system.

7. Target groups: Researchers interested in classroom observation procedures, administrators and supervisors concerned with the assessment of teacher classroom performance.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research and Development Memorandum No. 37. Project: 0401

1. Larnders M. Roy and Robert W. Heath, Interviews with Four Black Parents, September 1968.

2. Purpose: To identify the educational needs of a minority community as defined by members of that community.

3. Method: Four black parents were interviewed and literal transcriptions of the interviews were prepared.

4. As in item 3.

5. The interviews identify a number of problems and concerns related to the education of minority-group children and their parents' relationship to the school system.

6. We believe the interviews are useful in understanding and clarifying the relationship between school systems and citizens of minority communities.

7. Target groups: General.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research Memorandum No. 38. Project: 0501

1. David H. Feldman, A Study of a Fixed Sequency of Skill and Concept Acquisition Requisite to Performance of a Common School Task: Map Drawing, September 1968.

The purpose of the present study is to gather empirical evidence bearing on the hypothesis that a fixed sequence of concept and skill acquisition is requisite to representation of space in the drawing of a proper geographic map. Using Piagetian theory and observations as a guide, modifications in the construction and administration of a map-reading test first developed by Salomon (1968) were made so that the test items were arranged in a hypothesized fixed sequence, i.e., failure on any item precluded passing any future item. A map-drawing test was also administered. On the basis of data gathered for 46 fourth-, fifth-, and sixth-grade middle class Ss it was found that: (a) there was a positive relation between the level on which Ss represented space in their map drawings and the median reasoning level they exhibited on the map-reading test; (b) map-drawing category and map-reading scores were correlated .73 ($p < .001$), supporting the hypothesis that the map-reading test was reflecting the same abilities as map drawing; (c) a positive but non-significant correlation between map reading and IQ supported the hypothesis that map-reading was not simply another way of measuring IQ; (d) Salomon's (1968) results showing a three-level hierarchy of test items were replicated; and, (e) a Subjects x Items pass/fail analysis revealed that almost 75% of the items were distributed on a matrix as predicted by the fixed-sequence hypothesis. Despite difficulties in interpreting the results, the data are held to support the fixed-sequence hypothesis.

The study may be useful in planning curriculum in geography, in finding further applications of the map-reading test in both research and applied settings, and in providing developmental information about the way in which children acquire concepts and skills necessary for successful school performance. Researchers interested in spatial reasoning and cognitive development, social studies teachers and curriculum planners, and educational planners should find the study of interest.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Research and Development Memorandum No. 39. Project: 0502

1. Malcolm Taylor, Intercorrelations Among Three Methods of Estimating Student Attention, September 1968.

2. To determine the extent to which ratings of students' attending behavior based on still pictures correlated with two other measures of attention: (a) a self-estimate of attention, and (b) a stimulated-recall test.

3. A photographic sample of the students' behavior was obtained by using an automatic camera set to make a photograph every 90 seconds, producing a 35-frame filmstrip during a 50-minute class. A self-estimate of the students' attending behavior was obtained at the end of the class period, and a stimulated-recall test was administered the day after the lesson.

4. Twelve classes of six intern teachers of foreign languages in the Stanford Teacher Education Program.

5. The Spearman rank-difference correlations between the three measures of attention revealed: (a) a substantial correlation (median rho = .63) between the stimulated-recall test and the self-estimate of attention, and (b) generally lower, and only occasionally significant, correlations between the filmstrip ratings and the other two measures of attending behavior. These results lend support to the importance of distinguishing between the concept of attention as the orientation of the sensory receptors toward a learning task and a second level of attention in which the individual actually processes the cognitive content of the sensory input.

6. It is suggested that the stimulated-recall technique represents a promising method for measuring the second level of attention.

7. Target groups: Researchers interested in the phenomenon of attention and in classroom-observation techniques.

Stanford Center for Research and Development in Teaching

Publication Resume

Series: Technical Report No. 2. Project: 0103

1. Robert L. Politzer and Diana Bartley, Practice-centered Teacher Training: Spanish, 1967.

This syllabus for the training of teachers of Spanish combines four strands of the teacher-training program (applied linguistics, language practice, methodology, teaching practice) in such a way that the theoretical foundations of language teaching are described and directly related to practical application. The syllabus contains four parts: 1, Applied linguistics; 2, An index of Spanish grammar and review texts; 3, Performance criteria of language teachers; 4, Micro-lessons. The micro-lessons illustrate principles of applied linguistics and performance criteria.

The syllabus can be used as a textbook or reference book in teacher-training courses, but is scientifically designed to illustrate the principles of practice-centered teacher training and microteaching for methods courses for teachers of Spanish.

B. PRODUCT REGISTER

Stanford Center for Research and Development in Teaching
(Center)

5-0252
BR No.

Code No.	Title	Investigator(s)
01	Microteaching: What's That? (Film)	D. W. Allen
0101	Technical Skills of Teaching (Film)	F. J. McDonald
0401	Tomorrow Never Comes (Audio Tape)	R. W. Heath L. Roy

Stanford Center for Research and Development in Teaching

Product Resume

1. Microteaching: What's That?

2. A 30-minute color film. Provides an imaginative introduction to microteaching from the point of view of a teaching intern anticipating her first microteaching experience.

3-4. Useful to persons interested in the techniques of microteaching and the questions beginners may ask about the techniques.

5. Available from the Center for rental ($30.)) or purchase ($200.00). Rental or purchase fees go into revolving fund to cover cost of additional prints.

6. No formal evaluation conducted.

Stanford Center for Research and Development in Teaching

Product Resume

1. Technical Skills of Teaching.

2. A 30-minute color film. A master teacher models three technical skills of teaching: silence (listening), reinforcement, probing. Commentary by F. J. McDonald.

3-4. Useful to persons interested in the technical skills approach.

5. Available from the Center for rental ($30.00) or purchase ($200.00). Rental or purchase fees go into revolving fund to cover costs of additional prints.

6. No formal evaluation conducted.

Stanford Center for Research and Development in Teaching

Product Resume

1. Tomorrow Never Comes (Larnders Roy)

2. A 30-minute tape interview with a black parent, dealing with his and his children's educational experiences, values, and attitudes.

3-4. Useful to professional educational personnel and all those interested in understanding the educational and social problems of minority-group members.

5. Available for purchase from the Center. Price about $3.00, to cover cost of duplication and packaging.

6. Formal evaluation not appropriate.

C. INSTITUTIONAL RELATIONSHIPS

The extensive manner in which the Center has become involved with specific communities, schools, other institutions of higher education, and educational agencies is described in the reports on specific projects. For example, in the program for the disadvantaged, we have opened a neighborhood store-front office in a shopping center in a black community. Members of the Center continue to meet and to work closely with the Far West Laboratory for Educational Research and Development; resources permitting, we shall undertake added cooperative projects in FY 69. As the program and focus of the Center has become more clearly defined, the number and variety of relationships with local schools and colleges has expanded. The teacher training program at San Jose State College, for example, has been used much more extensively.

Through the activation of an Advisory Panel, we hope to create new and strengthen old institutional relationships. For example, a new approach is being made to the California State Department of Education by appointing to the Advisory Panel its Director of Compensatory Education. Perhaps through capitalizing on the interest in programs for the disadvantaged we can secure a greater involvement of the State Department of Education. We have appointed to the Advisory Panel a Superintendent of Schools distinguished for his work with the disadvantaged. We will have on our Advisory Panel two State Commissioners of Education, again attempting to extend our relationship with state departments of education. One of these, well acquainted with the Center through his former position as Superintendent of Schools in Berkeley, will be the new Commissioner in the State of Massachusetts; the other is the distinguished Commissioner of Education for New York State. The Director of the Far West Laboratory for Educational Research and Development will serve on the Advisory Panel and will be its first Chairman. The Director of the Stanford Center will continue to serve on the Executive Panel of the Far West Laboratory and has begun to serve as one of the continuing advisors for two of the regional laboratories which have programs attending to the problems of teacher education: The Northwest Lab in Portland and the Michigan-Ohio Laboratory in Detroit. The Center Director also is a member of the National Advisory Panel of the new ERIC

Clearinghouse on Teacher Education in Washington, D. C.

We have found that each year since the establishment of the Center, as our program has become clarified and has developed substantively, the relationships with other educational institutions have grown soundly and constructively. We predict that this will be true in the future.

D. DISSEMINATION ACTIVITIES

During the period July 1-November 1, the Publication, Dissemination, and Media Unit prepared an updated bibliography of Center and Center-related publications. Progress was made toward updating the Center's mailing list. A new cover for Center publications was designed. Further plans were made for the development of a quarterly Center publication and a descriptive brochure on the Center. Manuscript for the Center's article in the Summer issue of the Journal of Research and Development in Education was revised and condensed. Publications issued during the period may be identified from the Publication Register.

Ten members of the Center's professional staff and research-assistant group presented papers, participated in symposia, or chaired sessions at the Annual Convention of the American Psychological Association in San Francisco on August 30-September 3. The results of some of these presentations will appear as Center publications.

Joan E. Sieber attended the UNICEF-sponsored Seminar on Learning and the Educational Process in Stockholm, Sweden, July 28-August 23, where she conducted a seminar on the uncertainty studies of the Stanford Center. Professor Sieber also prepared, at the request of the journal The Instructor, an article entitled "Teaching Children to Think," based on research and literature reviews stemming from the Uncertainty project.

R. N. Bush delivered a speech, "Can We Develop Curriculum-Proof Teachers?," at the October 21 meeting of the Indiana Education Association in Evansville. Much of the speech focused on the work of the Center.

The Center was host to a number of visitors from the United States and overseas. Official visitors included Dr. Joseph Froomkin from the U. S. Office of Education, Office of Program Planning and Evaluation, on July 24; Mr. Bernard Martin and Mr. Victor Zafra of the U. S. Bureau of the Budget, on August 14; and Mr. Kent Viehoever, Miss Nancy Needham, and Dr. Donald Medley, representing the Research and Development Centers Branch, on October 17 and 18.

The Executive Board has expressed an interest in maintaining active liaison with Dr. F. J. McDonald as he develops further work in heuristic teaching and technical skills of teaching in his new position at New York University.